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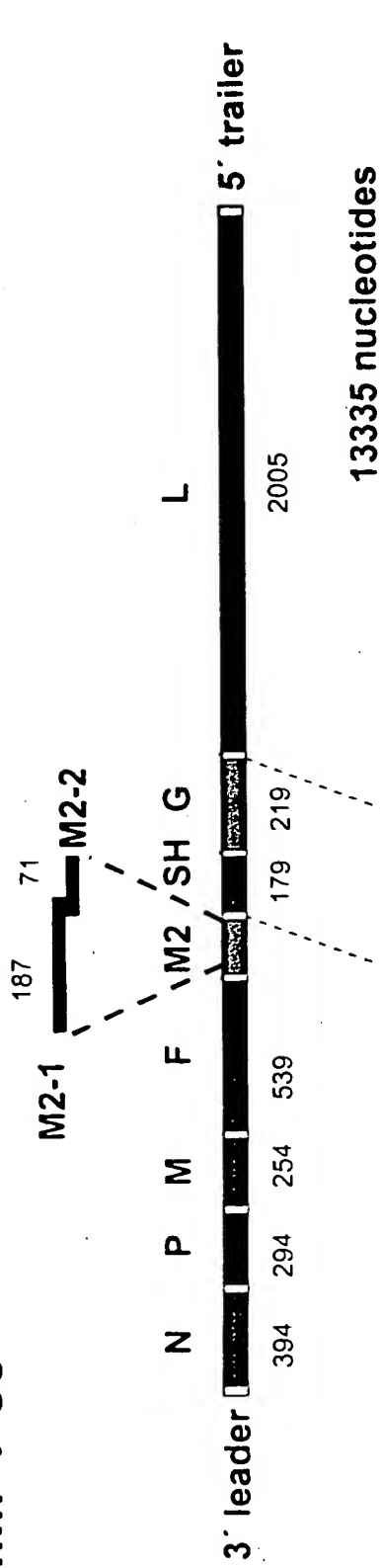
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# HMPV 83



# RSV A2

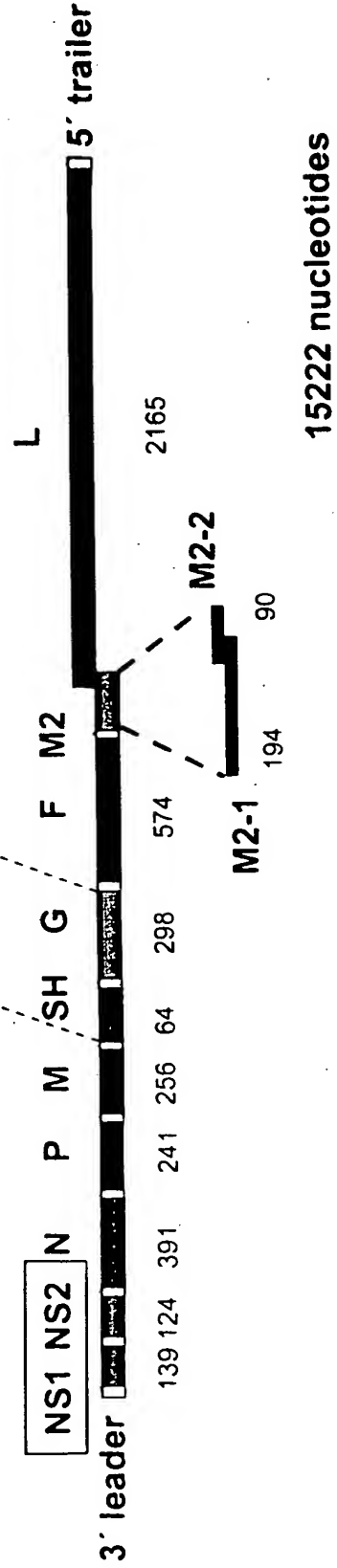


Fig. 1

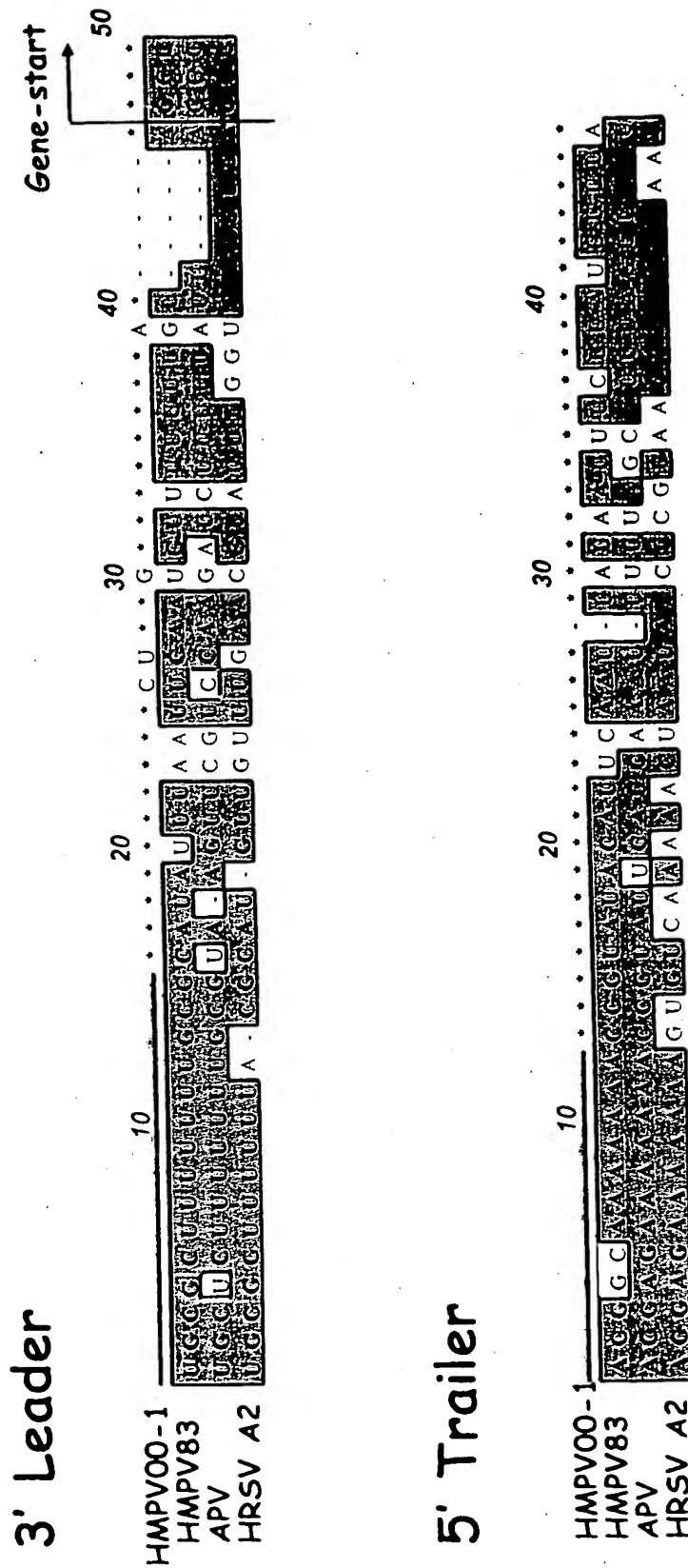


Fig. 2



# Examples of differences between HMPV 83 and HMPV 00-1

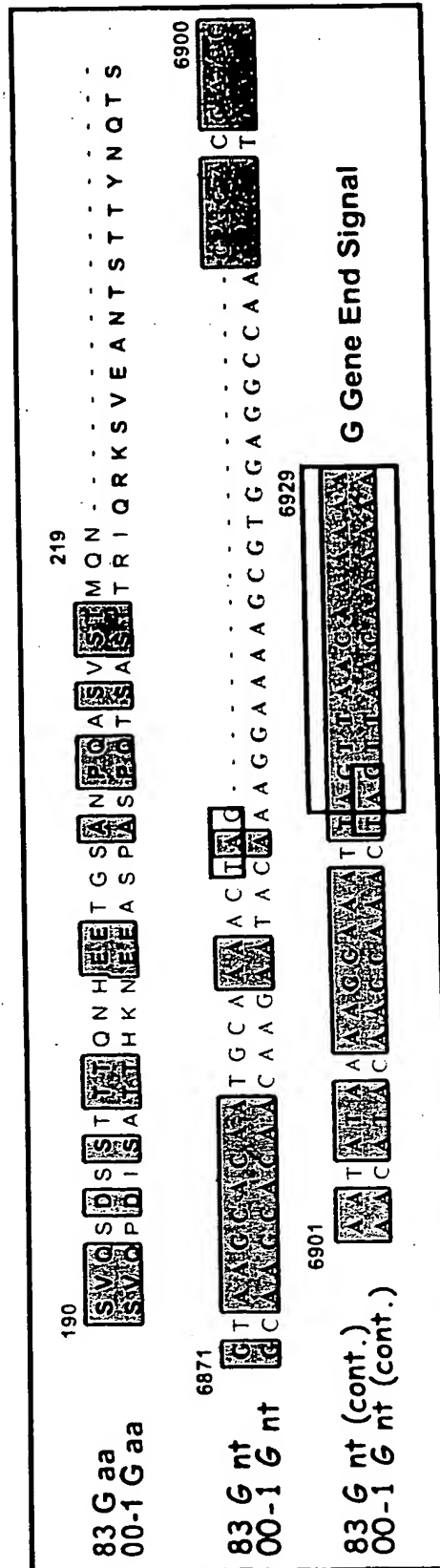


Fig. 4

# Amino acid identity between HMPV83 and other Pneumoviruses for the indicated proteins

	N	P	M	F	M 2-1	M 2-2	G	SH	L
HMPV 00-1	99	95	99	98	98	96	70	85	99
HMPV 97-82	95	85	97	94	ND	ND	ND	ND	ND
APV A	70	58	77	68	73	25	12	20	64
APV B	69	53	76	67	71	27	ND	20	ND
APV C	88	68	87	81	83	56	ND	ND	ND
HRSV A2	41	31	38	36	36	12	15	6	46
HRSV B	41	31	37	35	35	8	15	6	46
BRSV	41	31	37	37	35	14	19	10	46
PVM	45	28	38	40	36	12	ND	8	ND

ND: Comparison not done, usually because sequence was unavailable

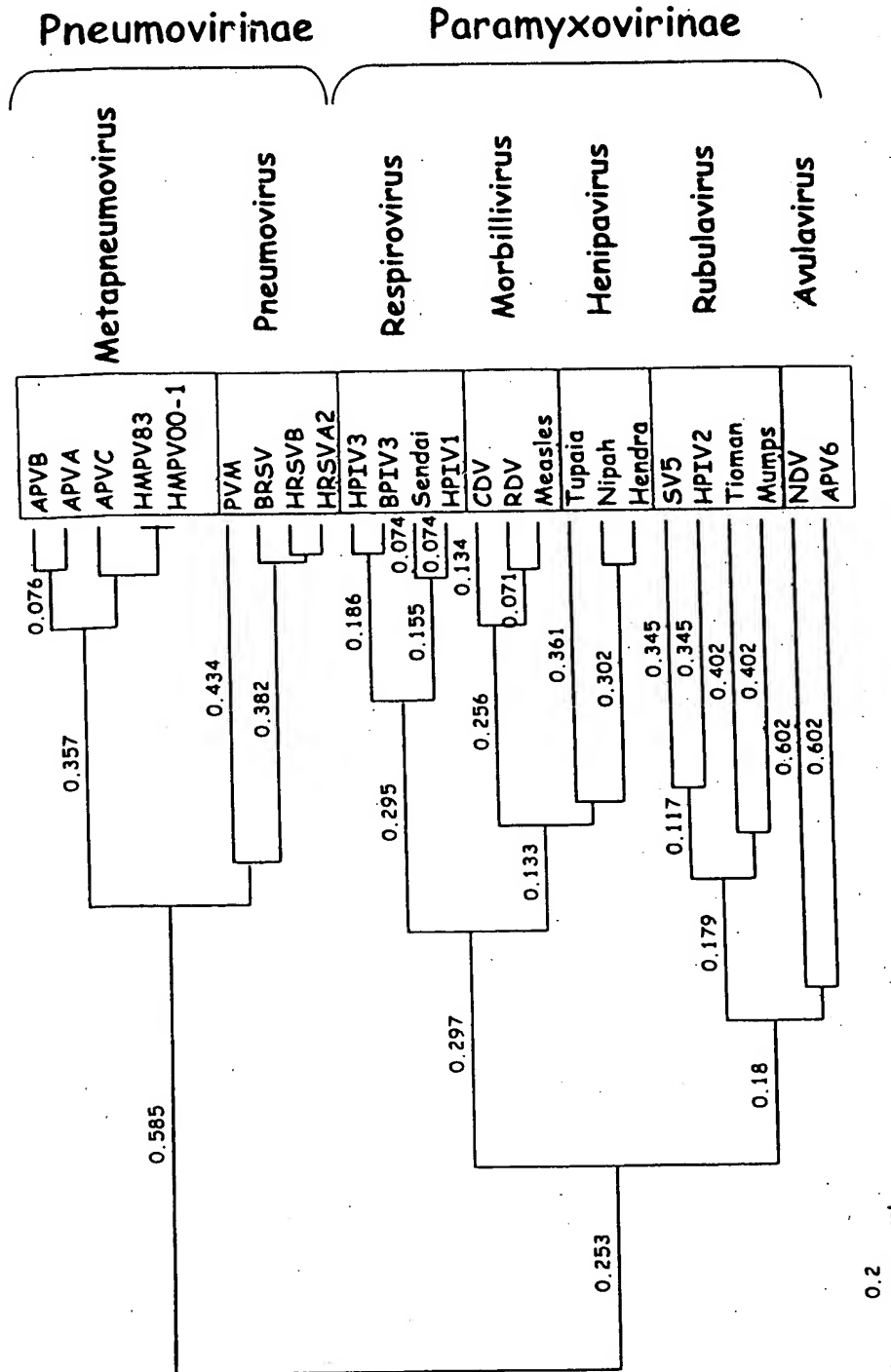


Fig. 6

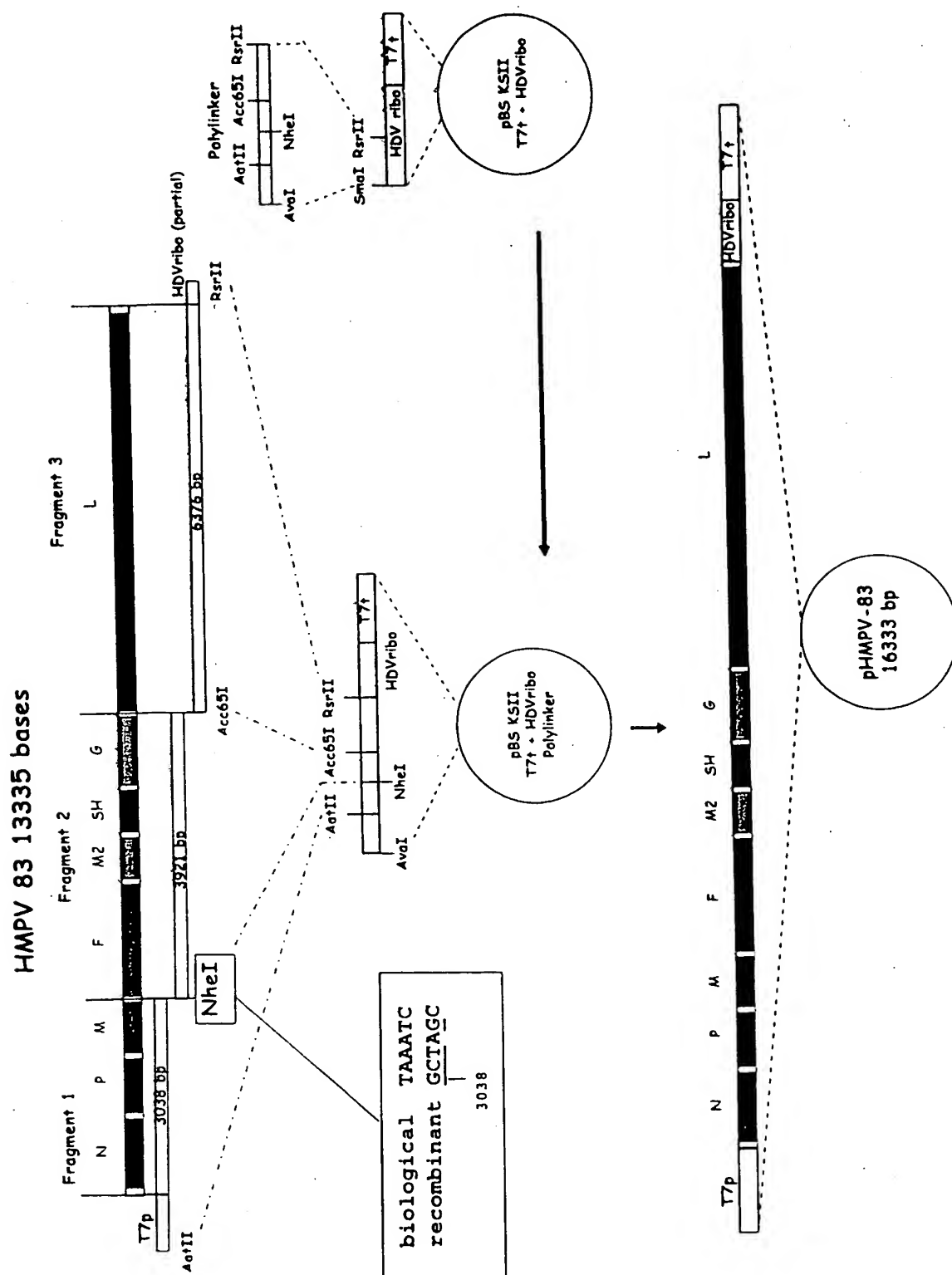


Fig. 7



# Gene Start Signal

	1	5	10	15
N	tacaaaaaacat	GGGACAAAGTGAAA	ATGtctcttc	
P	taataaaaaagt	GGGACAAAGTCAAA	ATGtcattcc	
M	aaaaataaaaaat	GGGACAAAGTGAAA	ATGgagtcct	
F	atcaatcaagaac	GGGACAAATAAAA	ATGtcttgga	
M2	taaaataaaaattt	GGGACAAATCATA	ATGtctcgca	
SH	aacacatcagagt	GGGATAAGTGACA	ATGataacat	
G	aaaacaaaaatat	GGGACAAAGTAGTT	ATGgaggtga	
L	aaacagcatccaa	GAGACAAATAGCA	ATGgatcctc	

## CONSENSUS

...at GGGACAAAGTGAAA ATGtc...  
 GC A T A AGTT ga  
 ta C C at

# Gene End Signal

	1	5	10
N	ttatg	AGTAATTAAAAAA	gt
P	tatgt	AGTTTAATAAAAA	taaaaaat
M	atattt	AGTTATATAAAAA	tcaagttagaat a
F	cagtt	AGTTAATTAAAAA	taaaataaaaatt t
M2	actta	AGTTAGTAAAAA	cacatcagagt
SH	agttt	AGTTATTTTAAAA	tatttgagaata g
G	aaatt	AGTTAACAAAAAA	tacgagatagct c
L	atgat	AGTTAATTAAAA	ttaaaaaattaaaa a

## CONSENSUS

...tt AGTTAATTAAAAA ta...  
 ag ATTAAT CC  
 ga GC gt

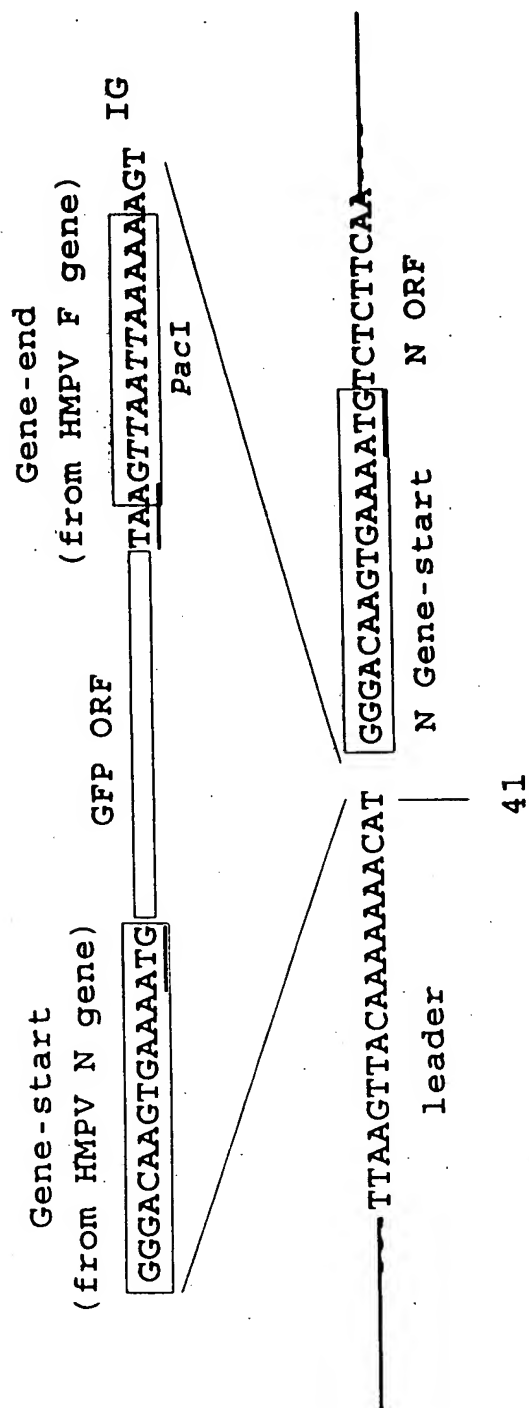


Fig. 9

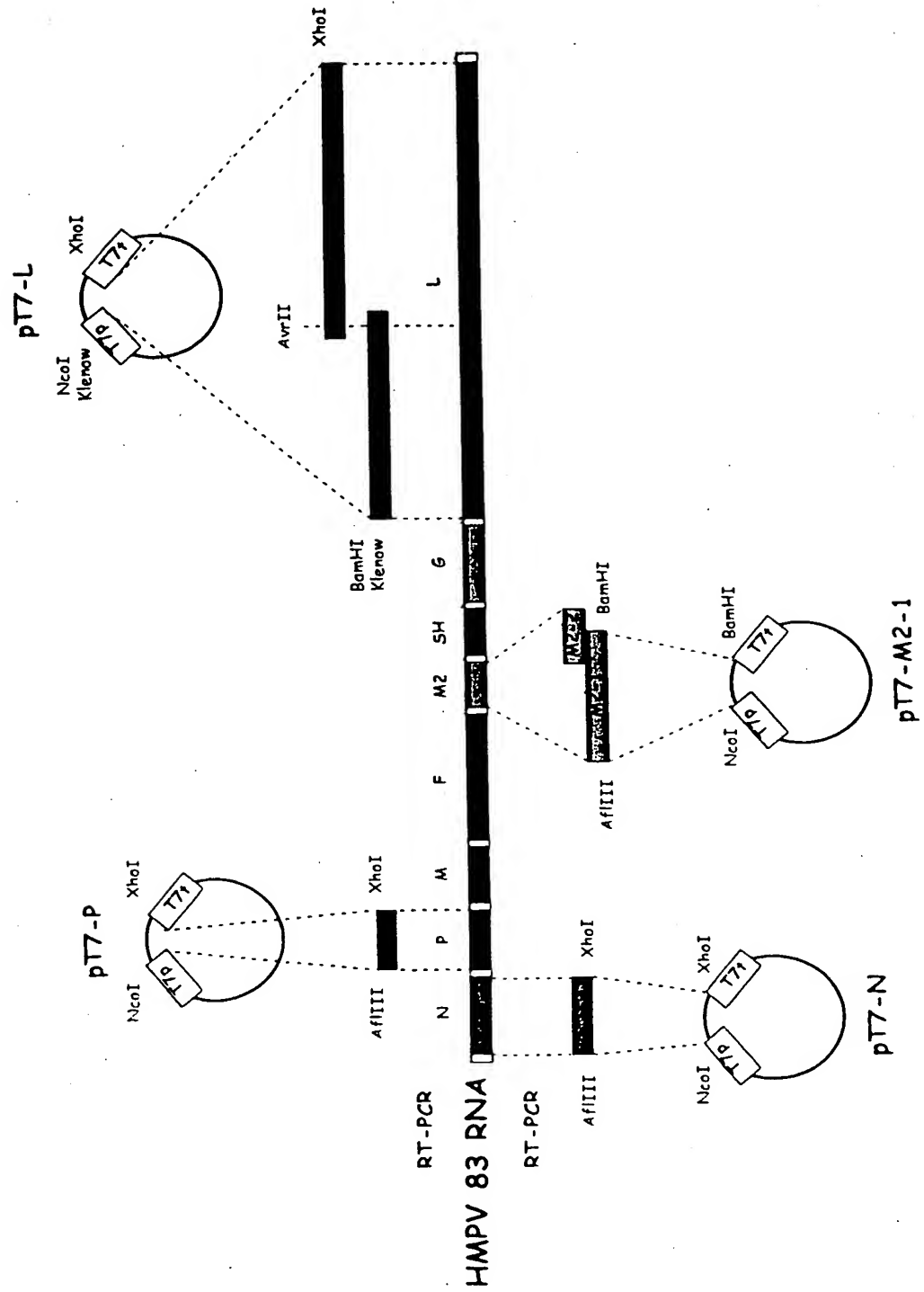


Fig. 10

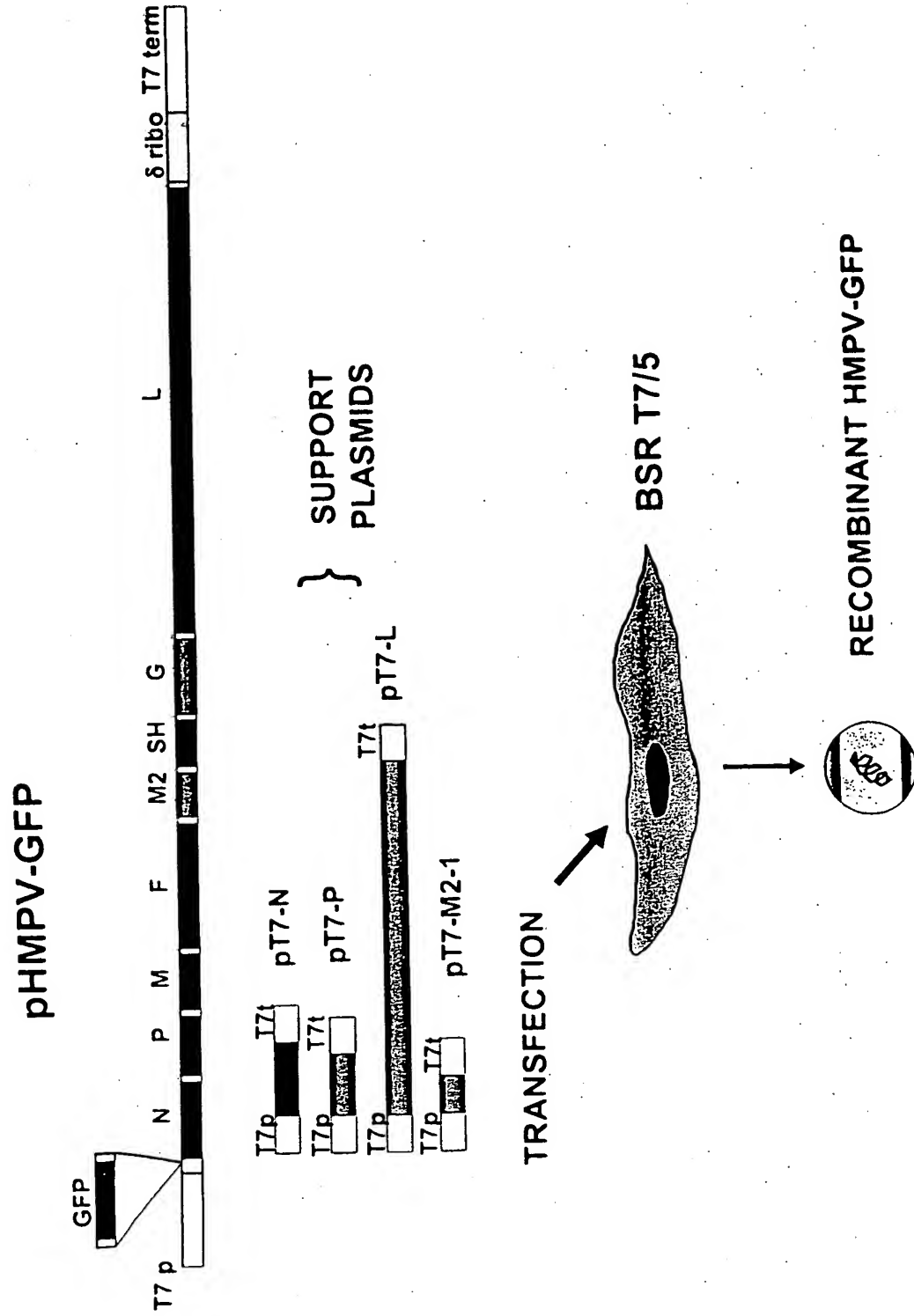


Fig. 11

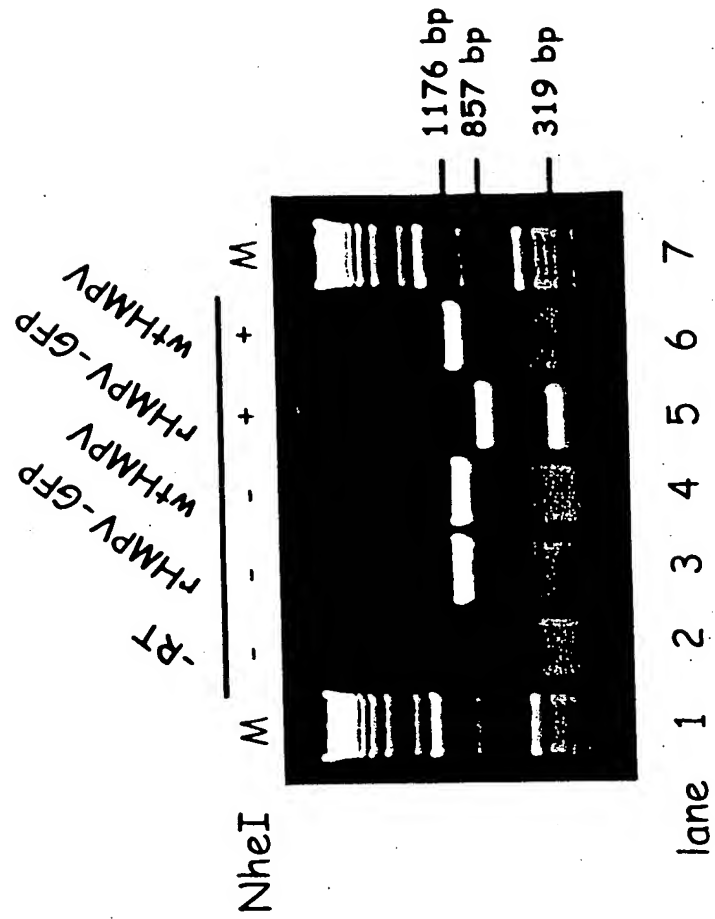


Fig. 12A

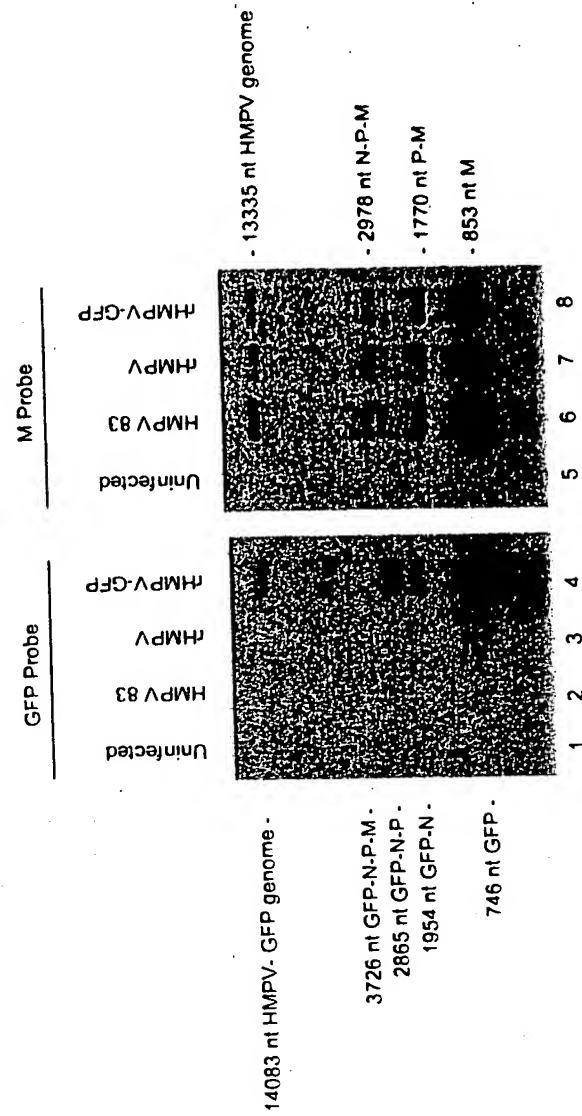


Fig. 12B

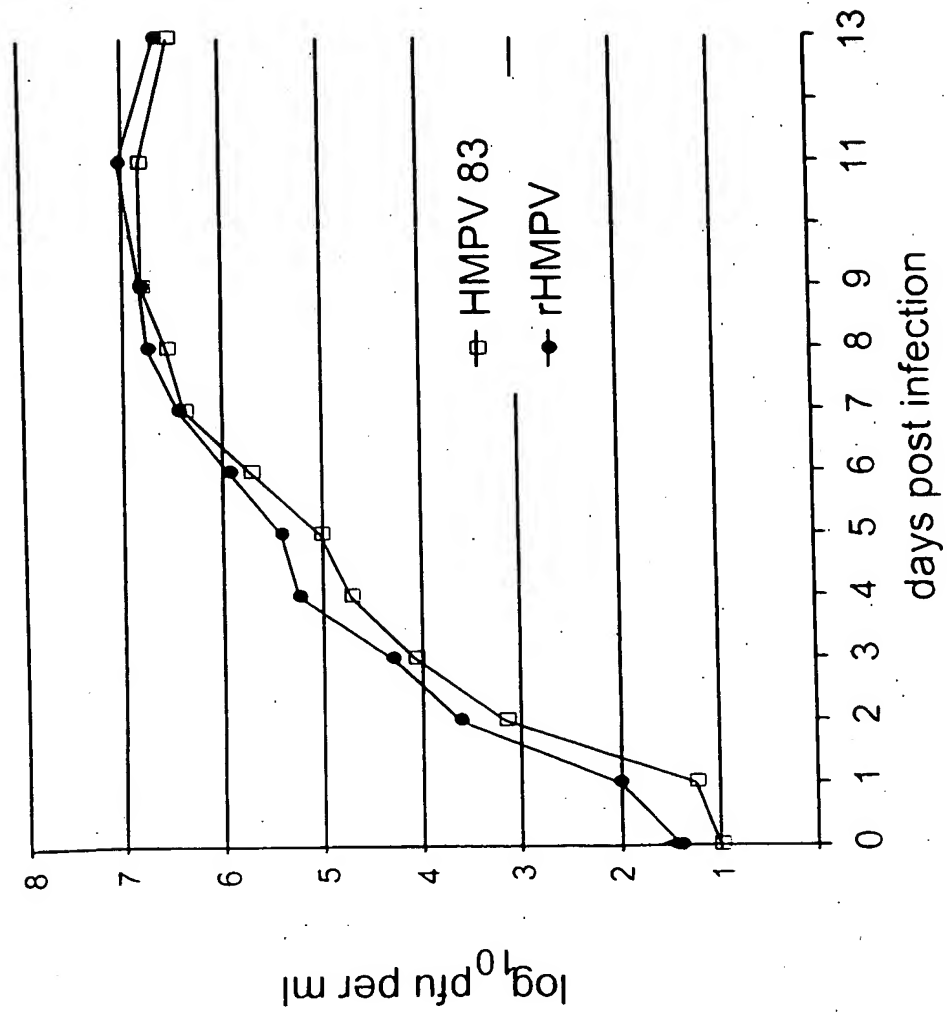


Fig. 13

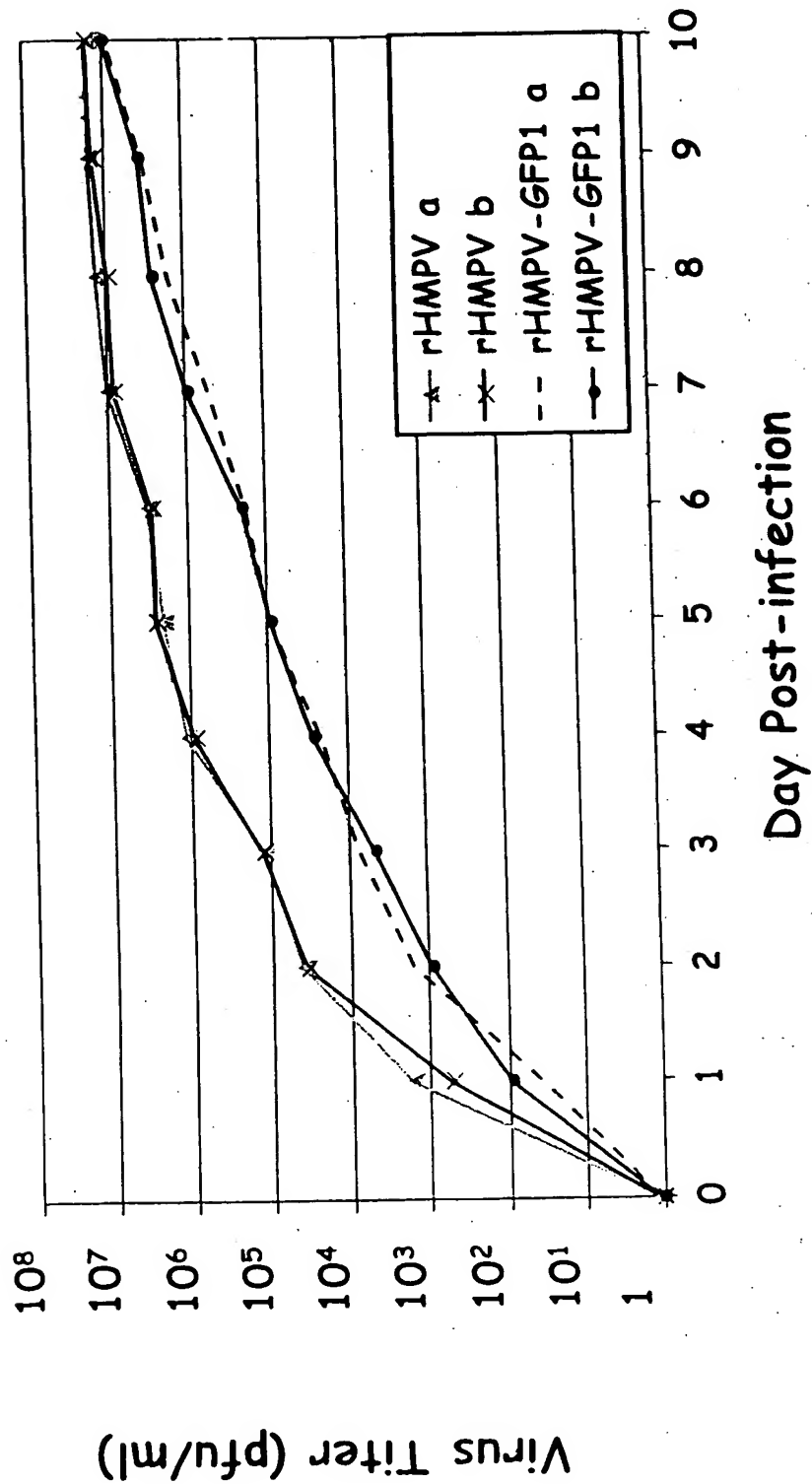


Fig. 14



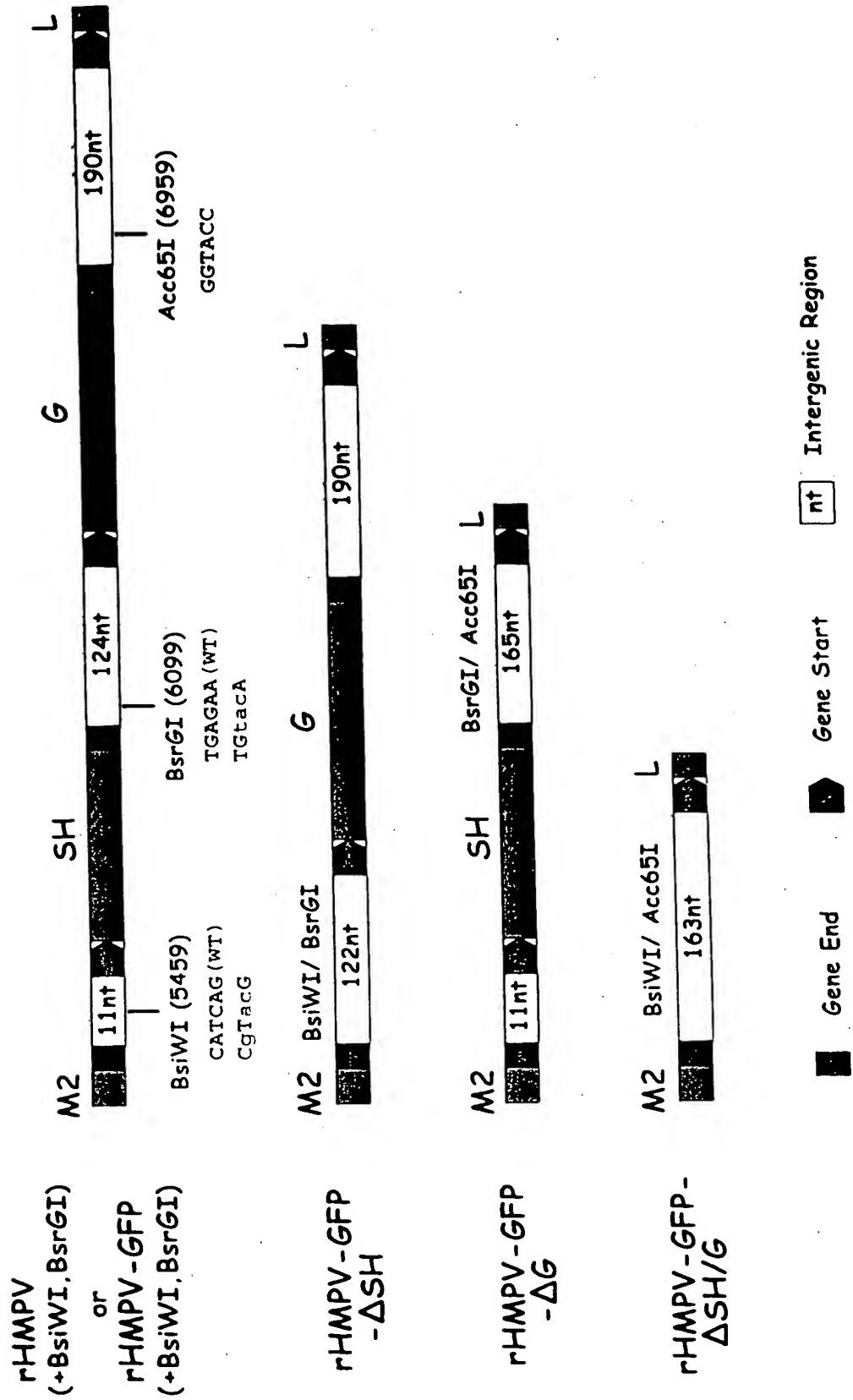


Fig. 15

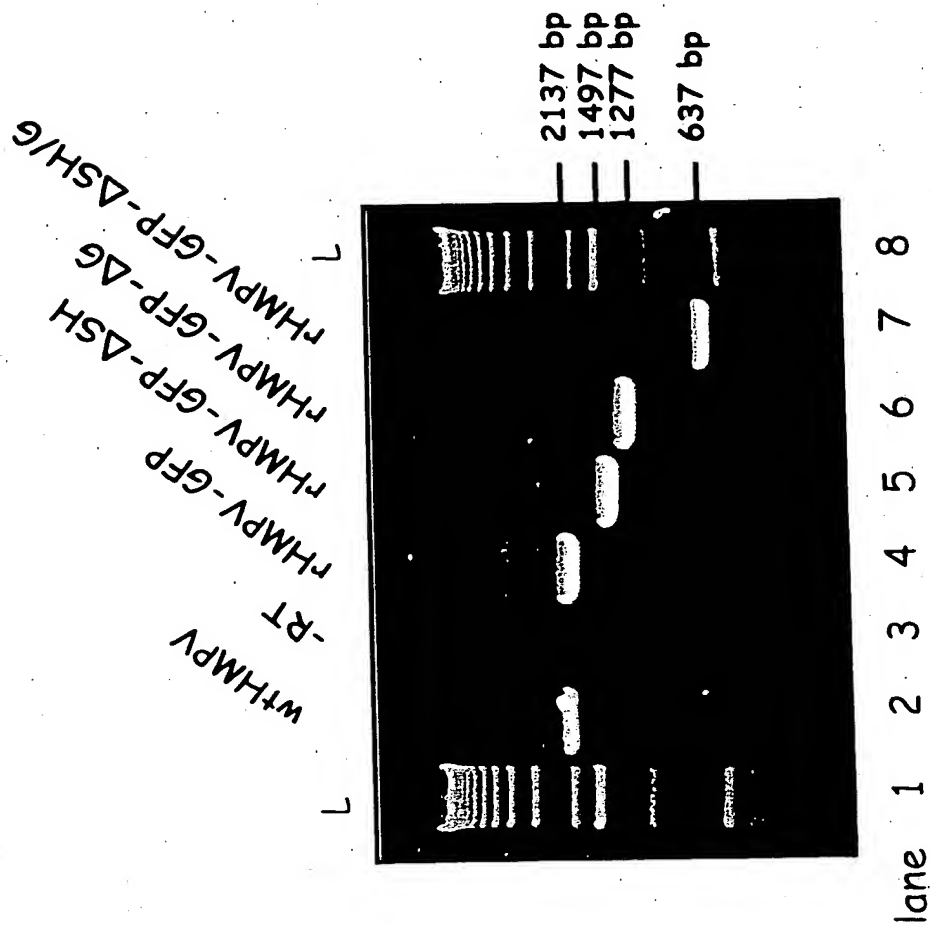


Fig. 16

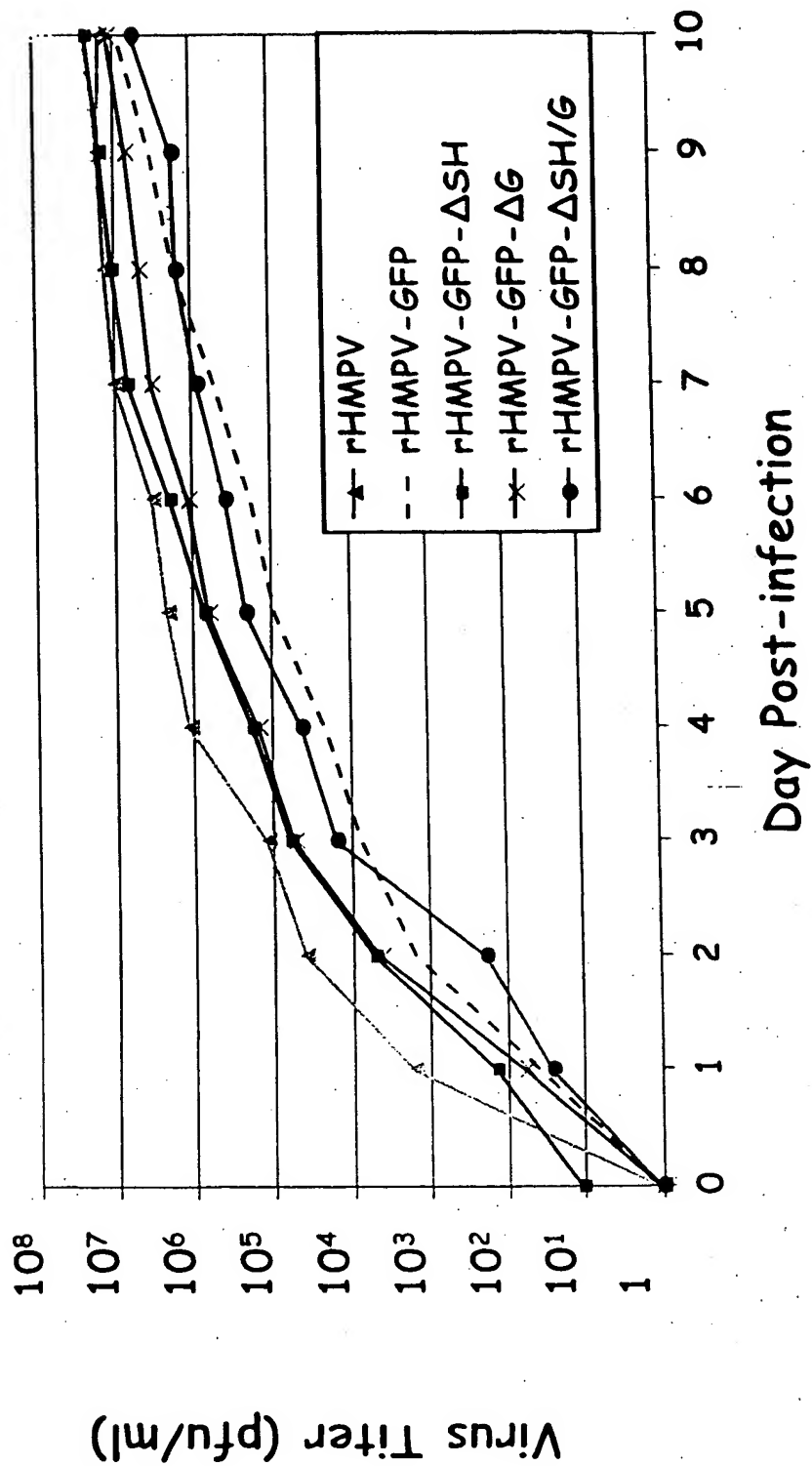


Fig. 17A

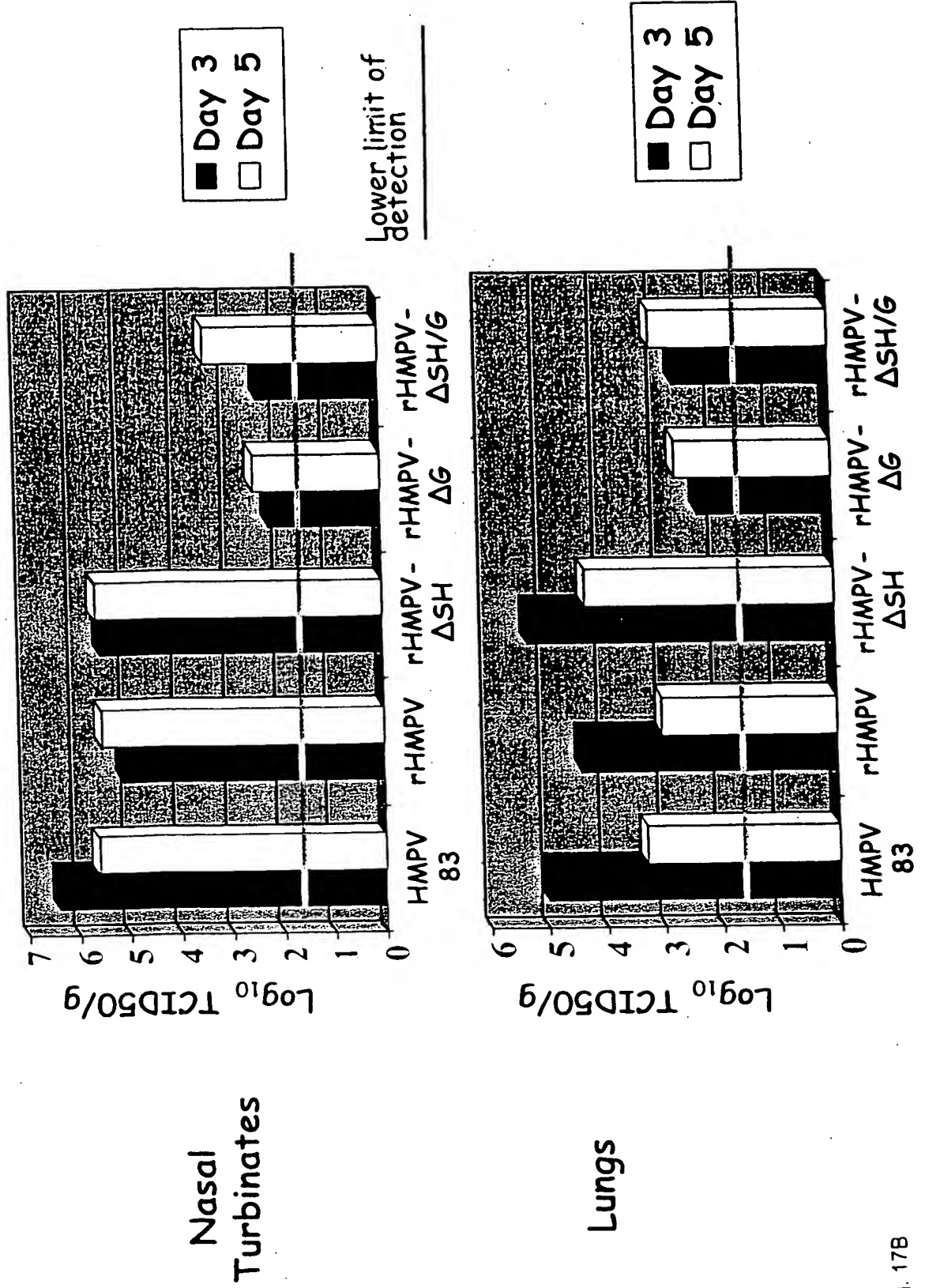


Fig. 17B

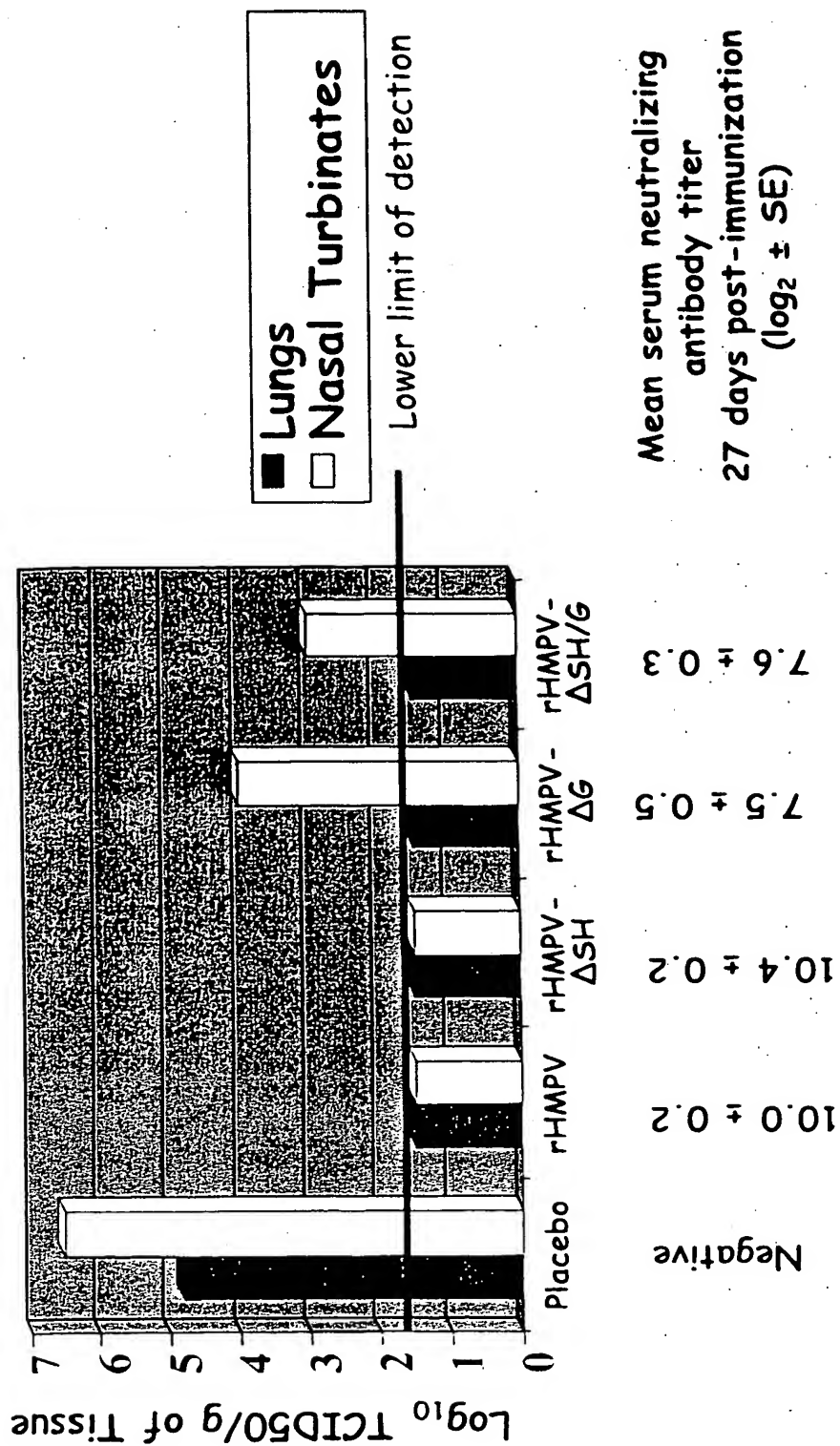


Fig. 17C

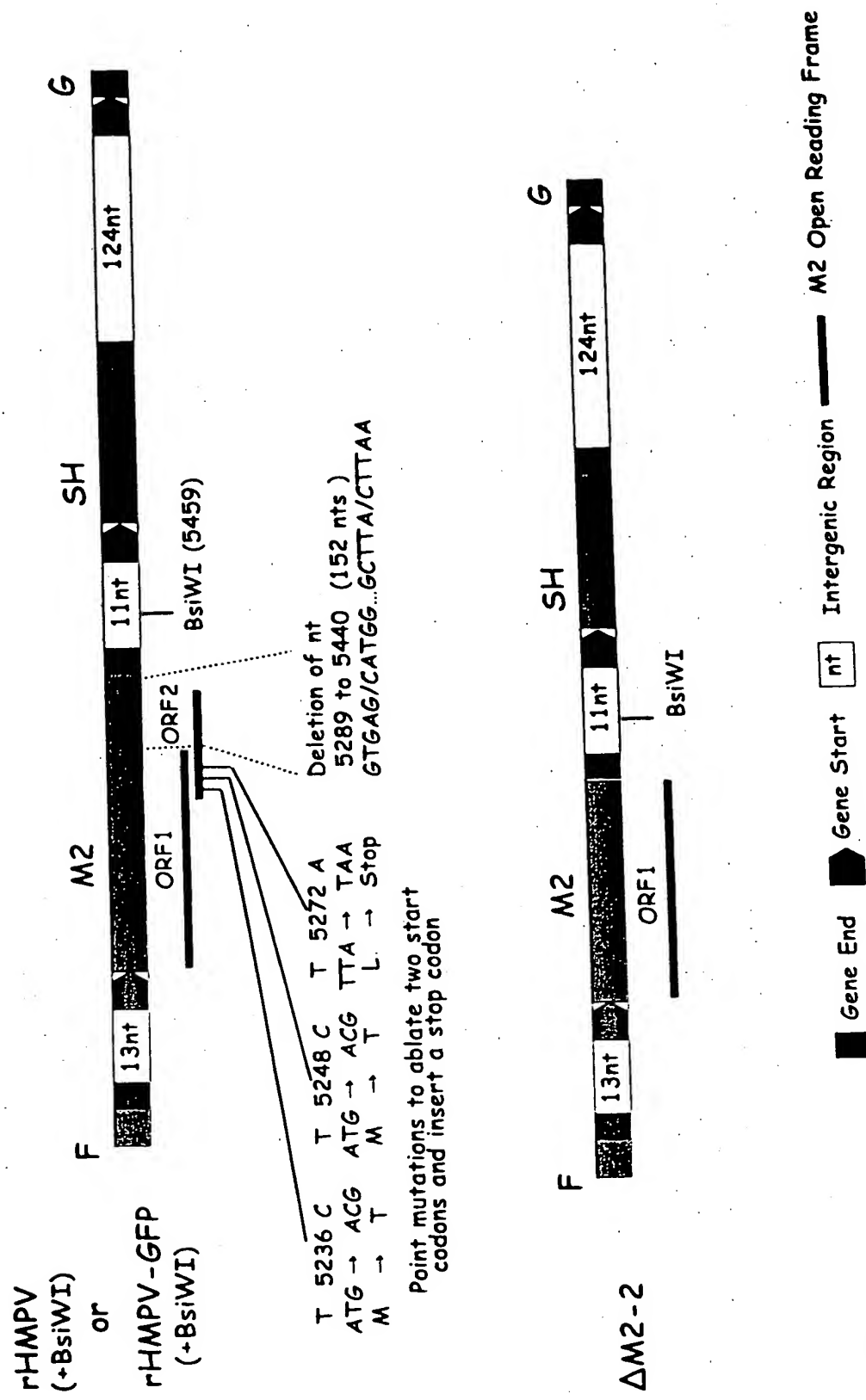


Fig. 18A

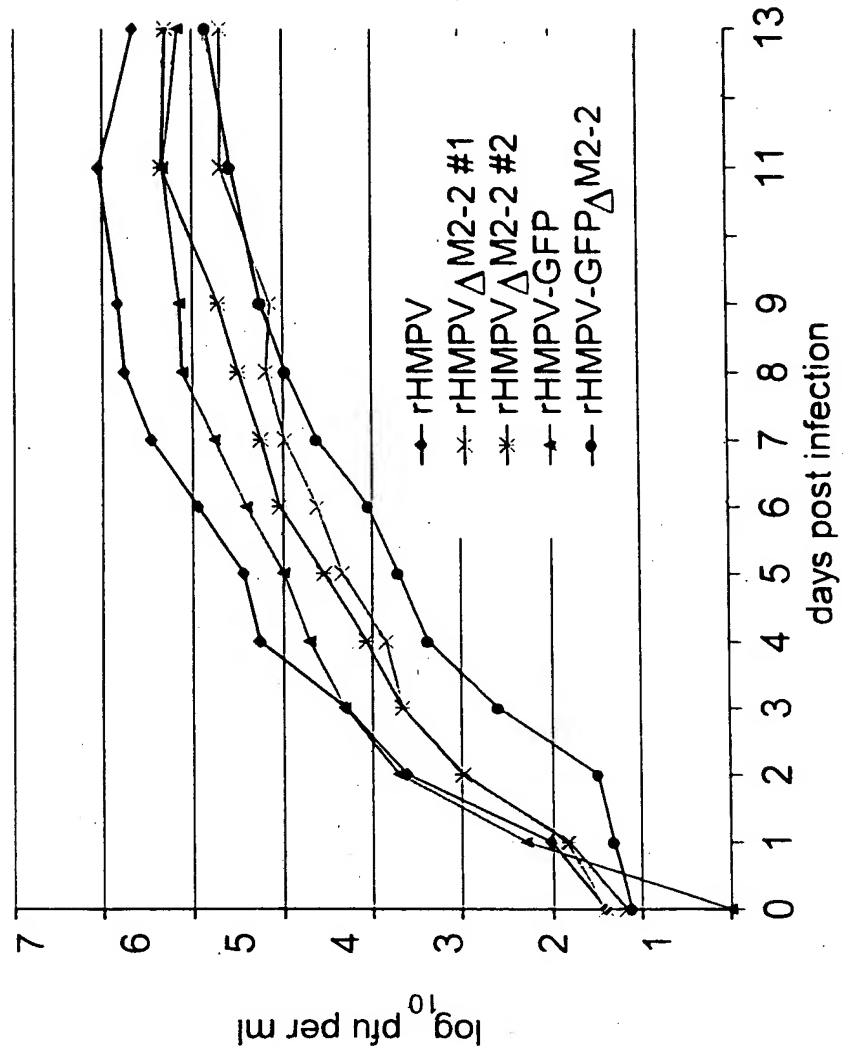


Fig. 18B

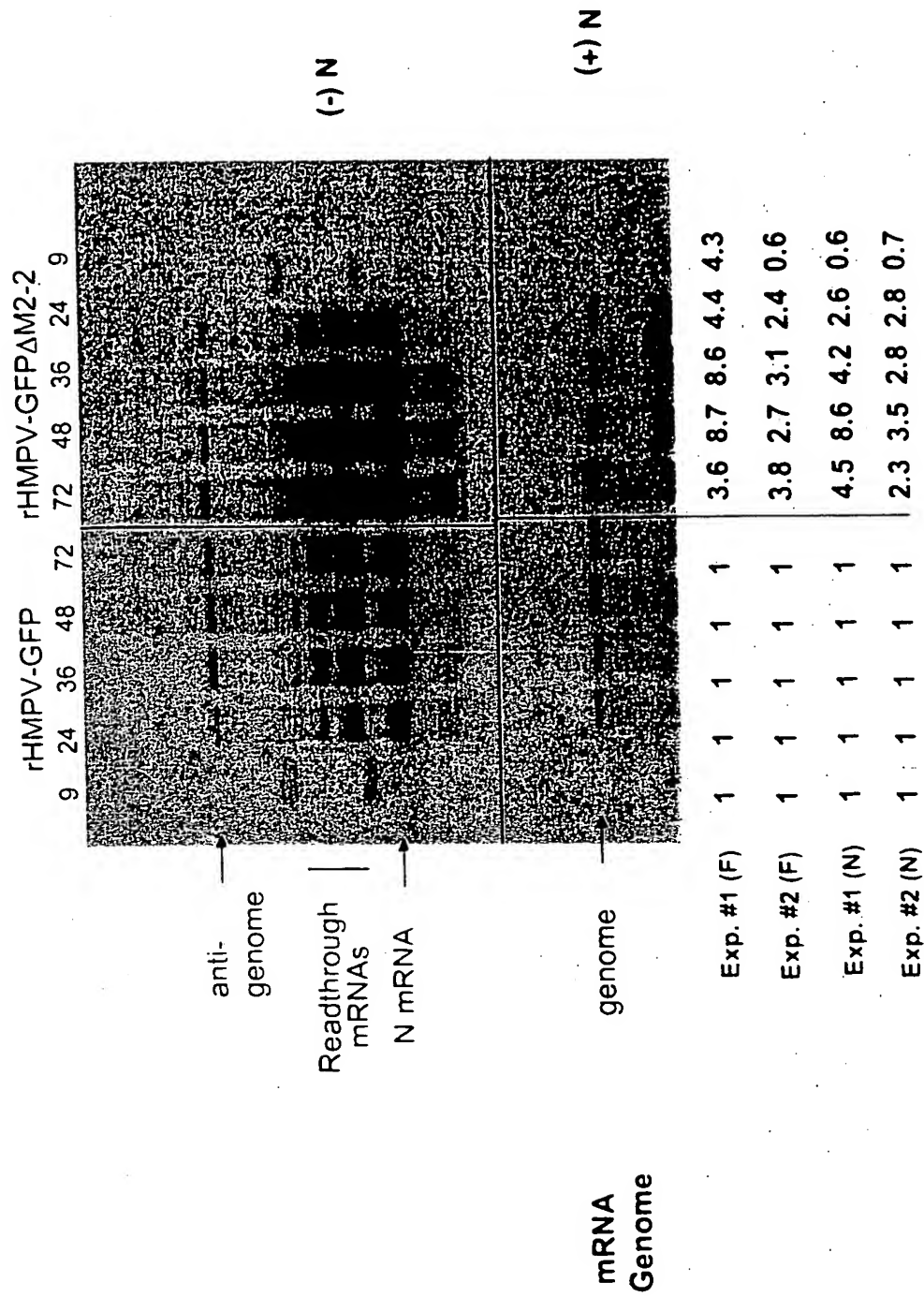


Fig. 18C



	C	X7	C	X5	C	X3	H
HMPV-GFP M2 C7S	M	S	R	K	A	P	C
HMPV-GFP M2 Y9S	M	S	R	K	A	P	C
HMPV-GFP M2 C15S	M	S	R	K	A	P	C
HMPV-GFP M2 N16S	M	S	R	K	A	P	C
HMPV-GFP M2 H25S	M	S	R	K	A	P	C

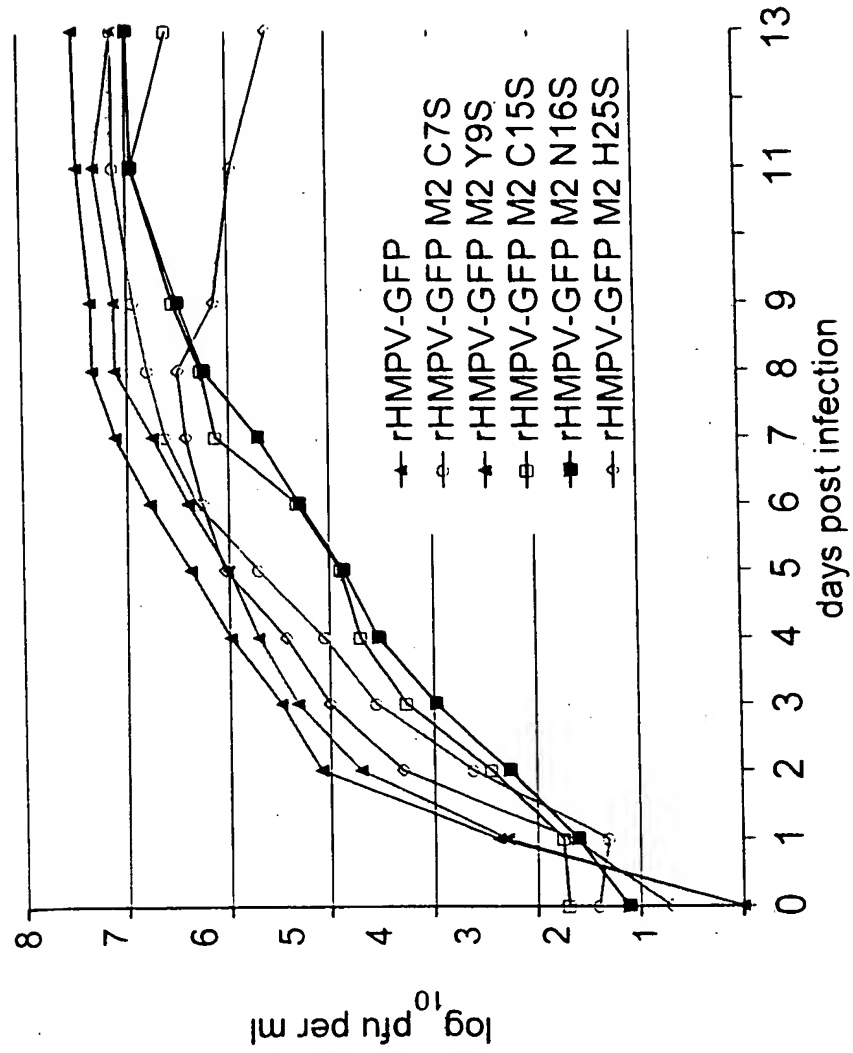


Fig. 20

	4775	
	GGGACAAATCATAA	TGC AAA TAT GAA GTG CGG GGC AAA TGC AAC AGA
	tag	t aa
	M S R K A P C K Y E V R G K C N R	N N
	tag	t aa
	CC A	TGC AAA TAT GAA GTG CGG GGC AAA TGC AAC AGA
	4711	
HMPV		
rHMPV-GFP ΔN2-1		
HMPV		
rHMPV-GFP ΔN2-1		

Fig. 21

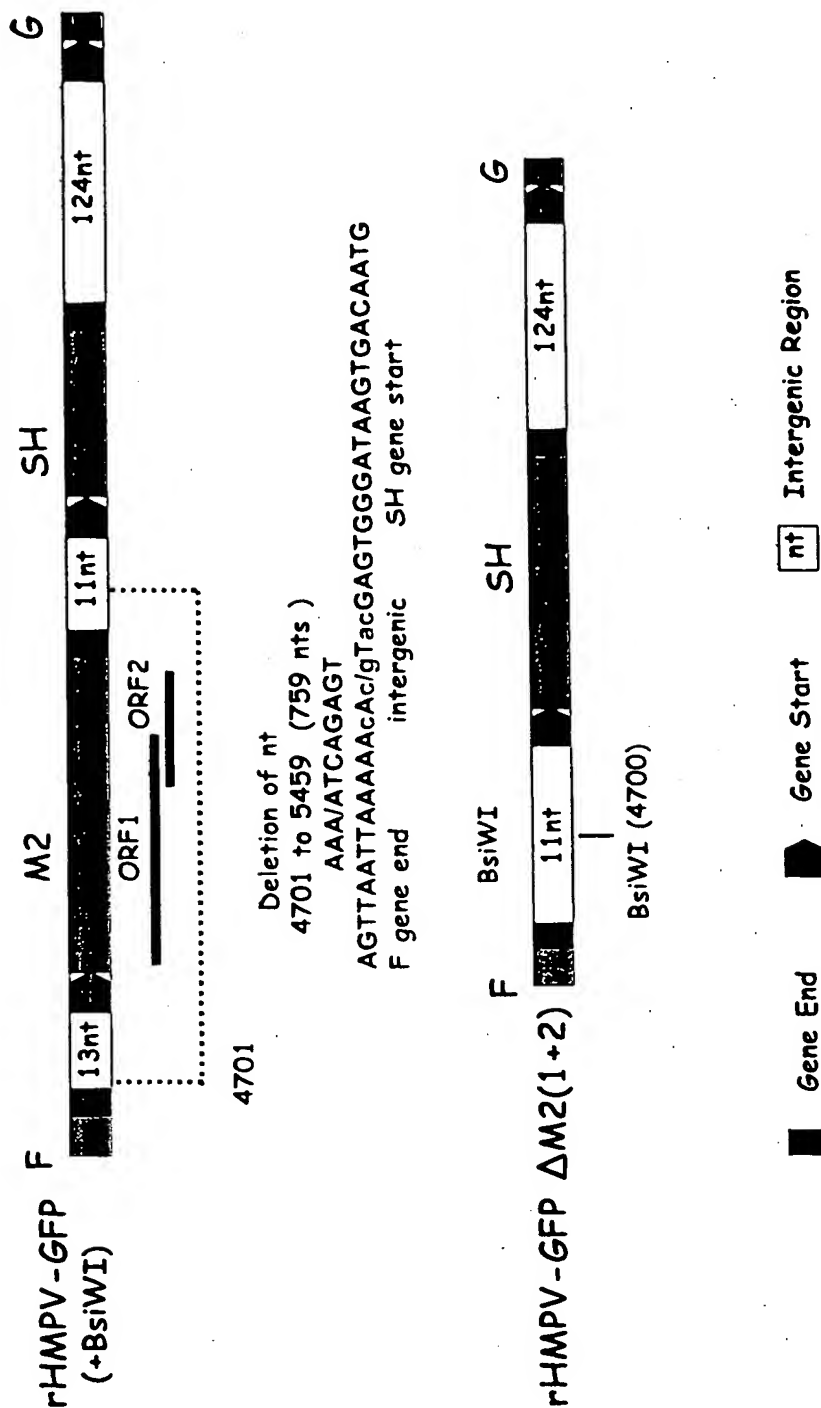


Fig. 22A

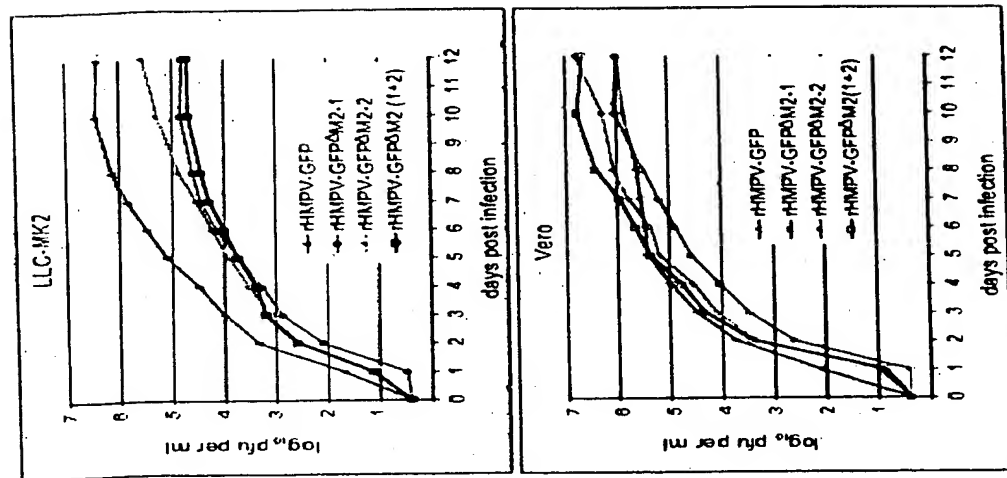


Fig. 22B

Reduction of virus yield in presence of exogenous interferon (IFN) type I

Virus	MOI	Fold reduction of virus yield			
		10 U IFN	100 U IFN	1000 U IFN	
rHMPV-GFP	1.0	5	160	1680	
rHMPV-GFP $\Delta$ M2(1+2)	1.0	19	1130	no virus	
rHMPV-GFP $\Delta$ M2-2	1.0	13	250	no virus	
RSV-GFP	0.01	4	17	90	



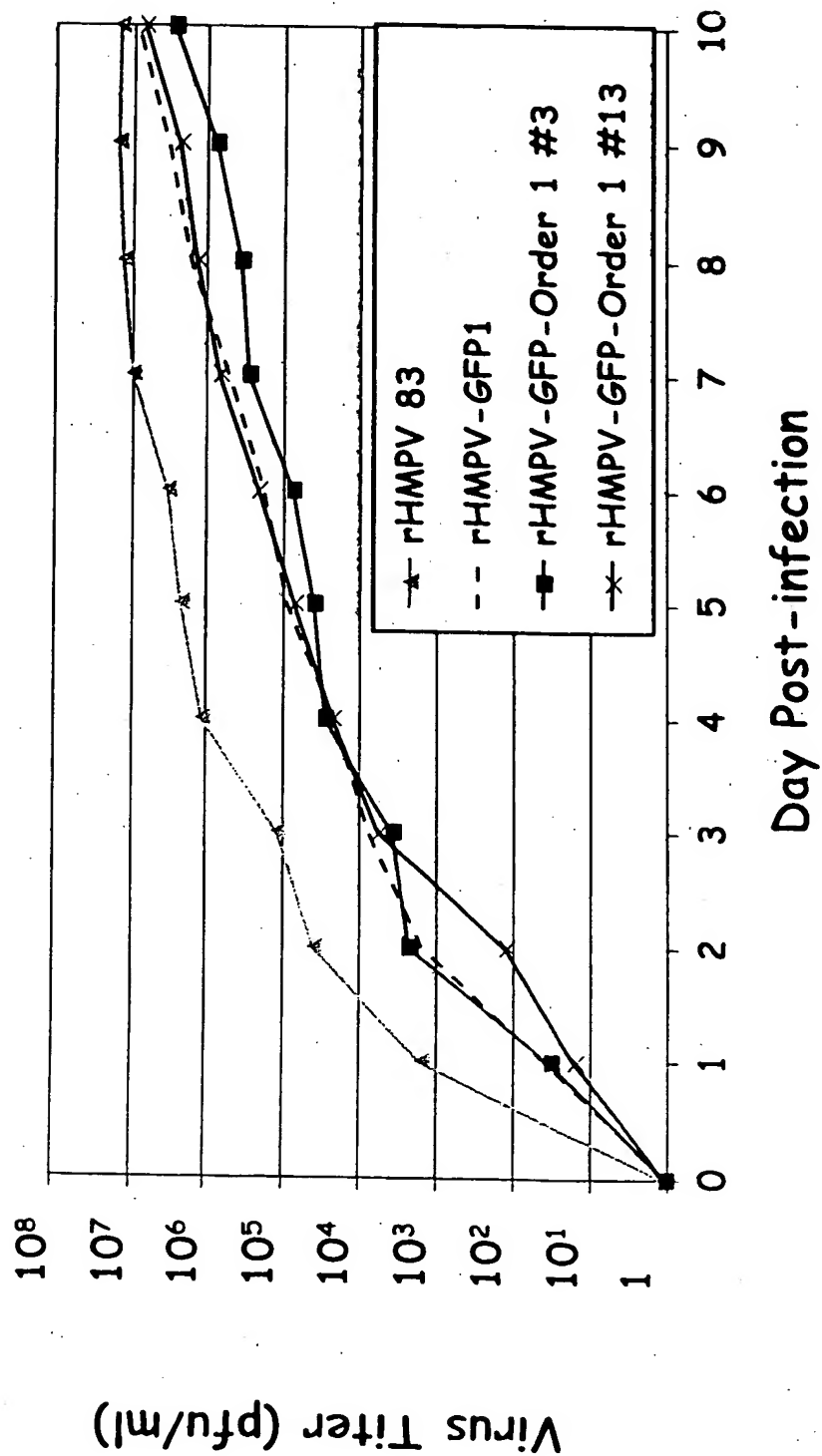


Fig. 23B



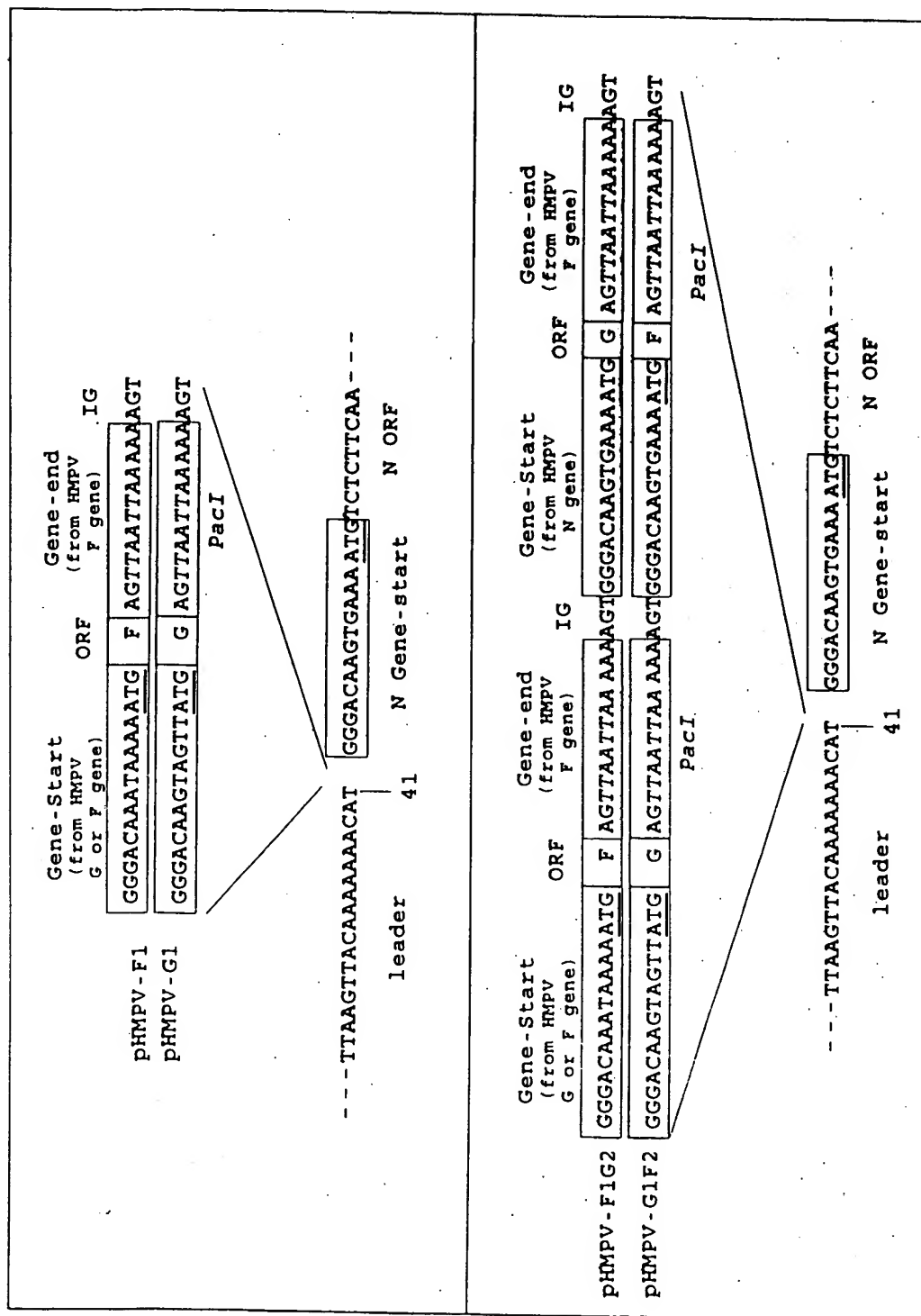


Fig. 24A

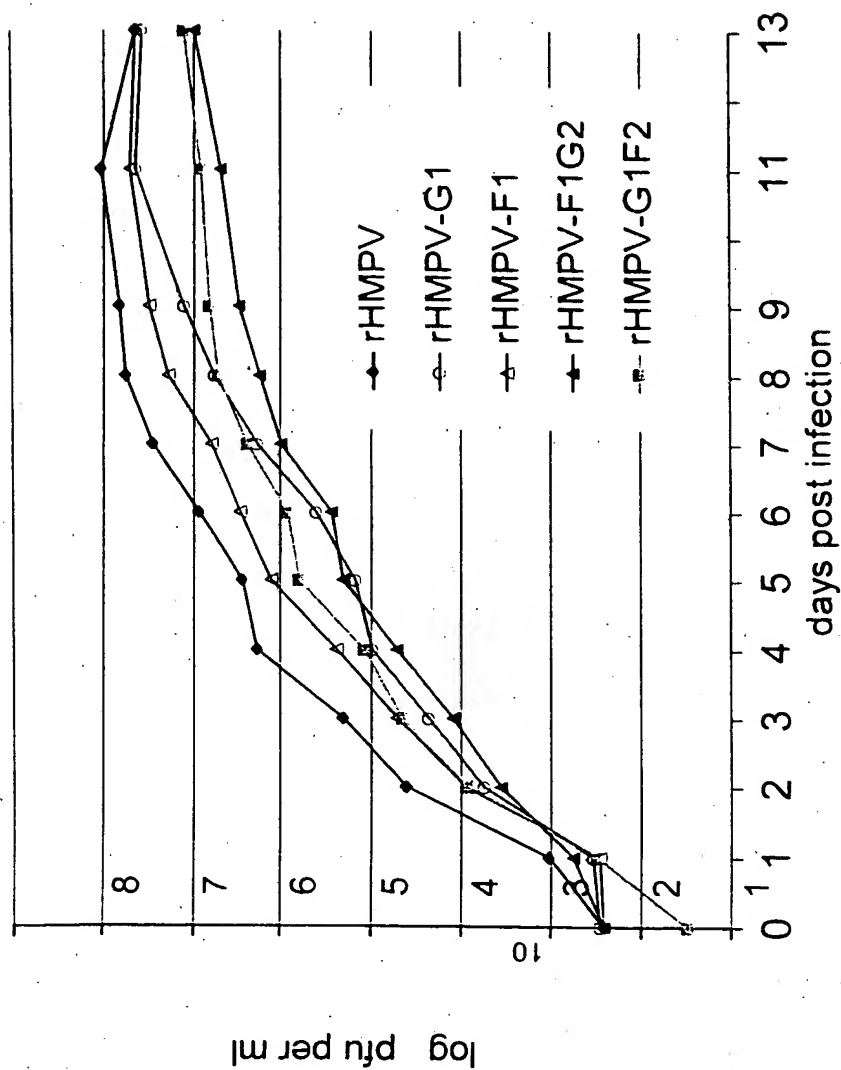


Fig. 24B

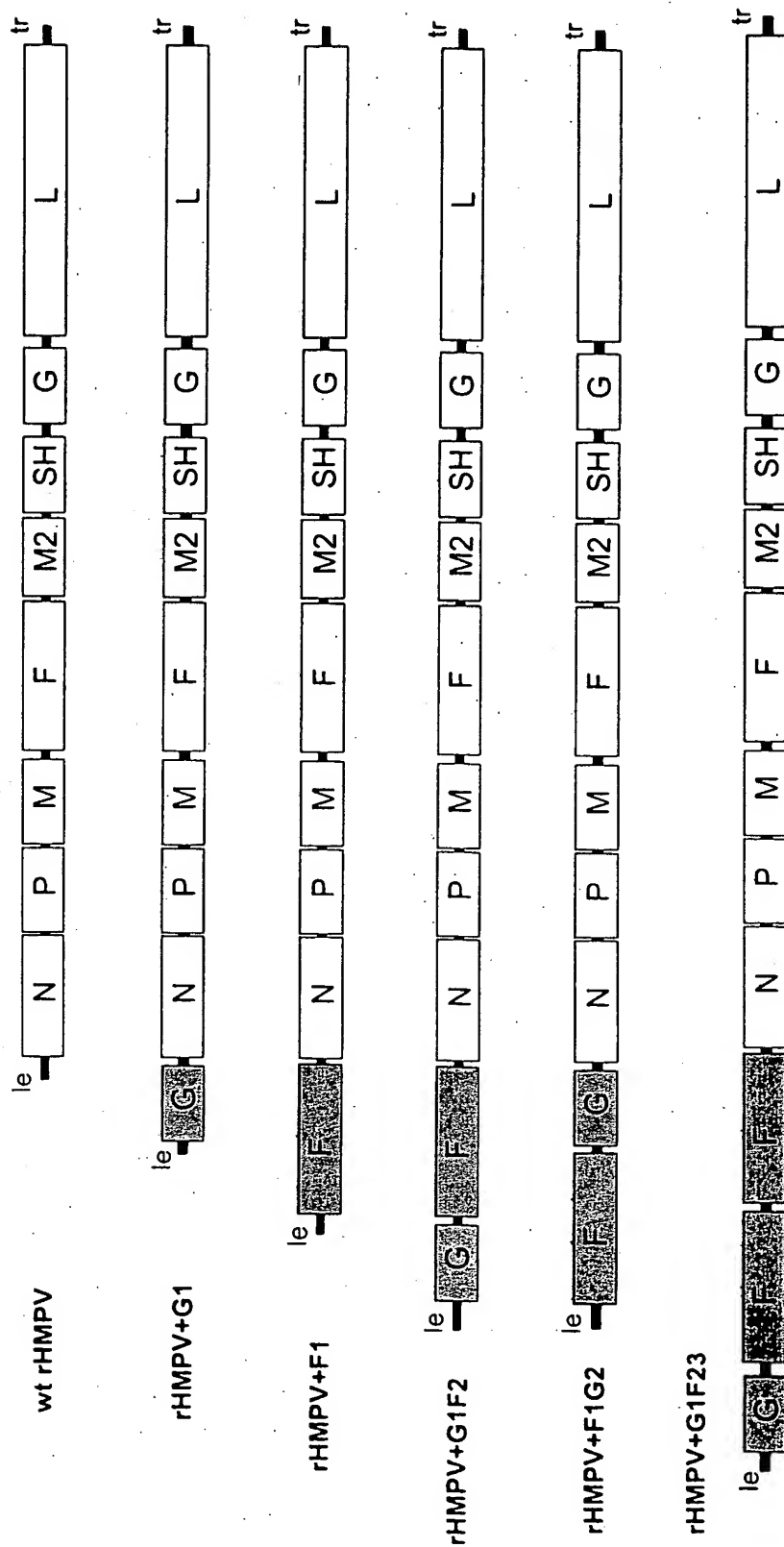


Fig. 25A

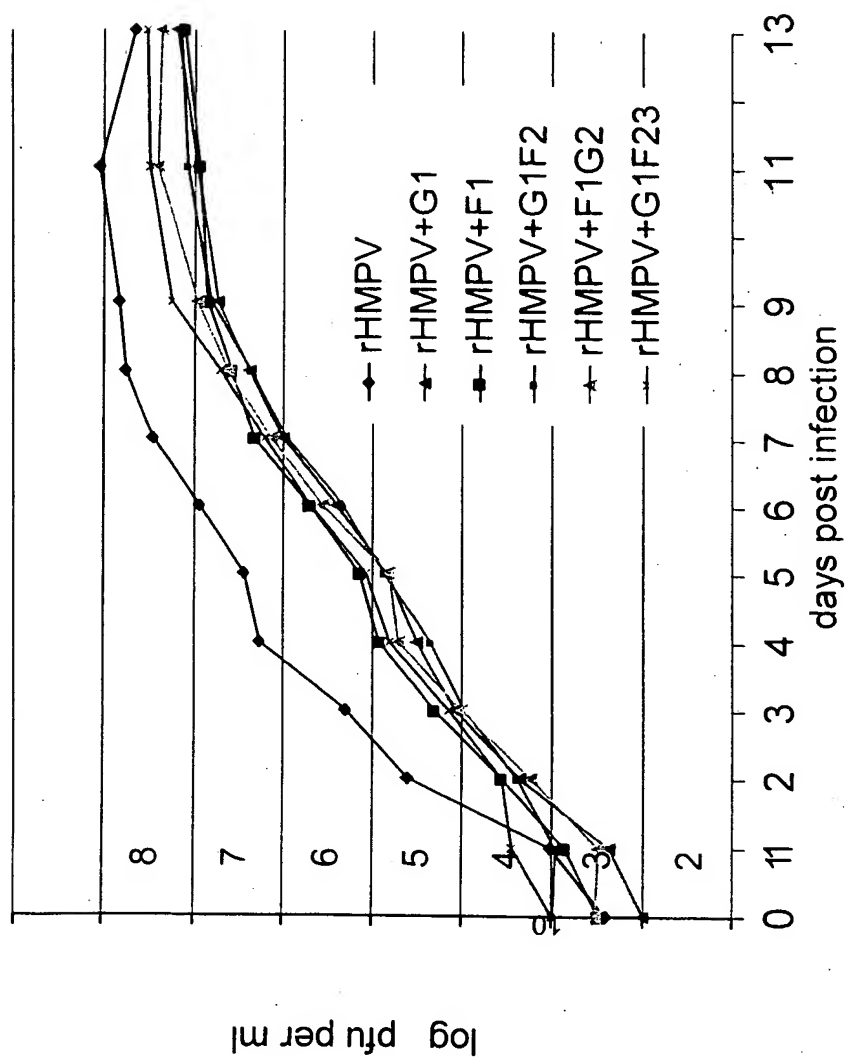


Fig. 25B

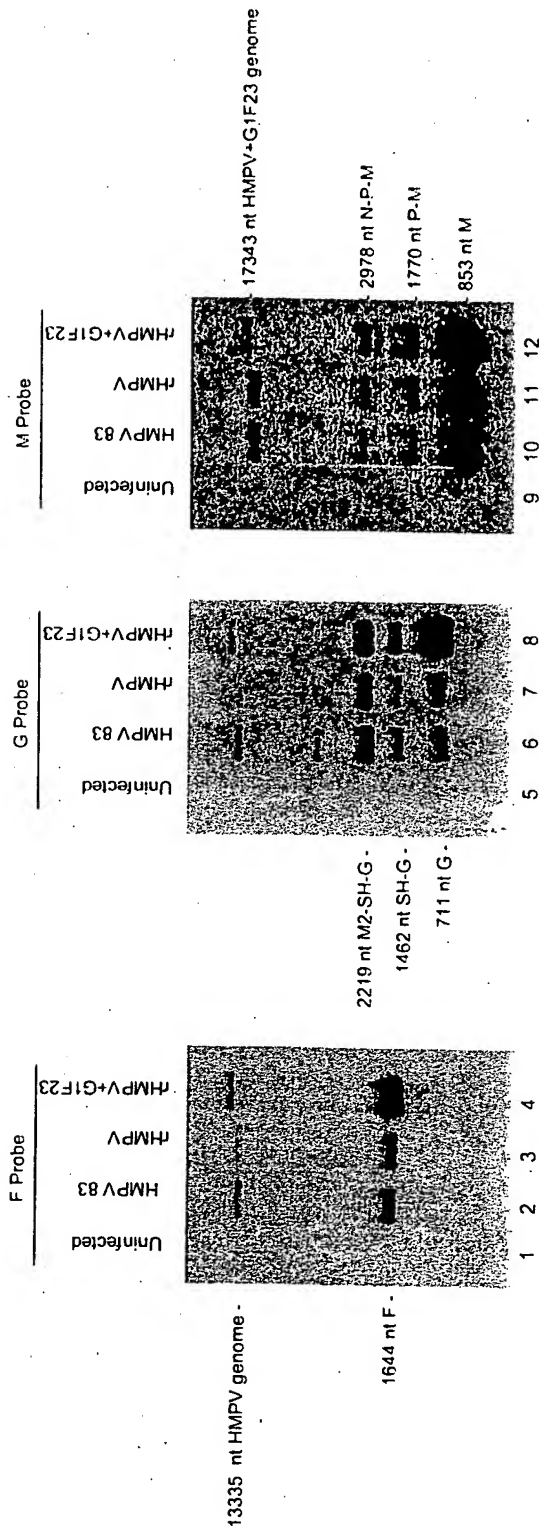
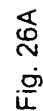
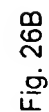


Fig. 25C









**Q831L**

hPIV3	772	G	D	N	O	S	I	D	V	S	K	P	V	K	S	E	G	816
hPIV1	772	G	D	N	O	S	I	D	V	S	K	P	V	K	S	E	G	816
hRSV A2	810	G	D	N	O	S	I	D	V	S	K	P	V	K	S	E	G	853
hMPV B3	744	G	D	N	O	S	I	D	V	S	K	P	V	K	S	E	G	787
hMPV O01	744	G	D	N	O	S	I	D	V	S	K	P	V	K	S	E	G	787

### RSV A2 Mutations M1169V, D1183E and C9

A6911W

**D1183E**

hPIV3	1087	V	G	I	N	R	G	L	T	S	S	L	R	R	K	S	N	I	N	Y	D	L	E	Q	Y	E	T	L	S	R	R	T	L	S
hPIV1	1087	P	A	S	V	R	G	L	T	S	S	L	R	R	K	S	N	I	N	Y	D	L	E	Q	Y	E	T	L	S	R	R	T	L	S
hRSV A2	1153	R	L	S	A	N	G	L	T	S	S	L	R	R	K	S	N	I	N	Y	D	L	E	Q	Y	E	T	L	S	R	R	T	L	S
hMPV 83	1078	R	L	S	A	N	G	L	T	S	S	L	R	R	K	S	N	I	N	Y	D	L	E	Q	Y	E	T	L	S	R	R	T	L	S
hMPV Q01	1078	R	L	S	A	N	G	L	T	S	S	L	R	R	K	S	N	I	N	Y	D	L	E	Q	Y	E	T	L	S	R	R	T	L	S

hPIV3	D	I	S	D	N	G	S	V	D	L	A	I	A	G	M	S	G	E	T	P	1160
hPIV1	K	P	K	D	N	I	E	V	M	F	A	I	A	G	M	T	H	G	E	T	1160
hRSV A2	D	K	R	E	I	L	S	I	-	E	L	S	R	T	-	-	-	-	-	1222	
hMPV B3	D	K	R	E	I	L	S	I	-	E	L	S	R	T	-	-	-	-	-	1147	
hMPV OO1	D	K	R	E	I	L	S	I	-	E	L	S	R	T	-	-	-	-	-	1147	

D1187A\* R1189A\*

**K1188A\* E1190A\***

E1208A\* R1209A\*

\* Six point mutations collectively designated C9





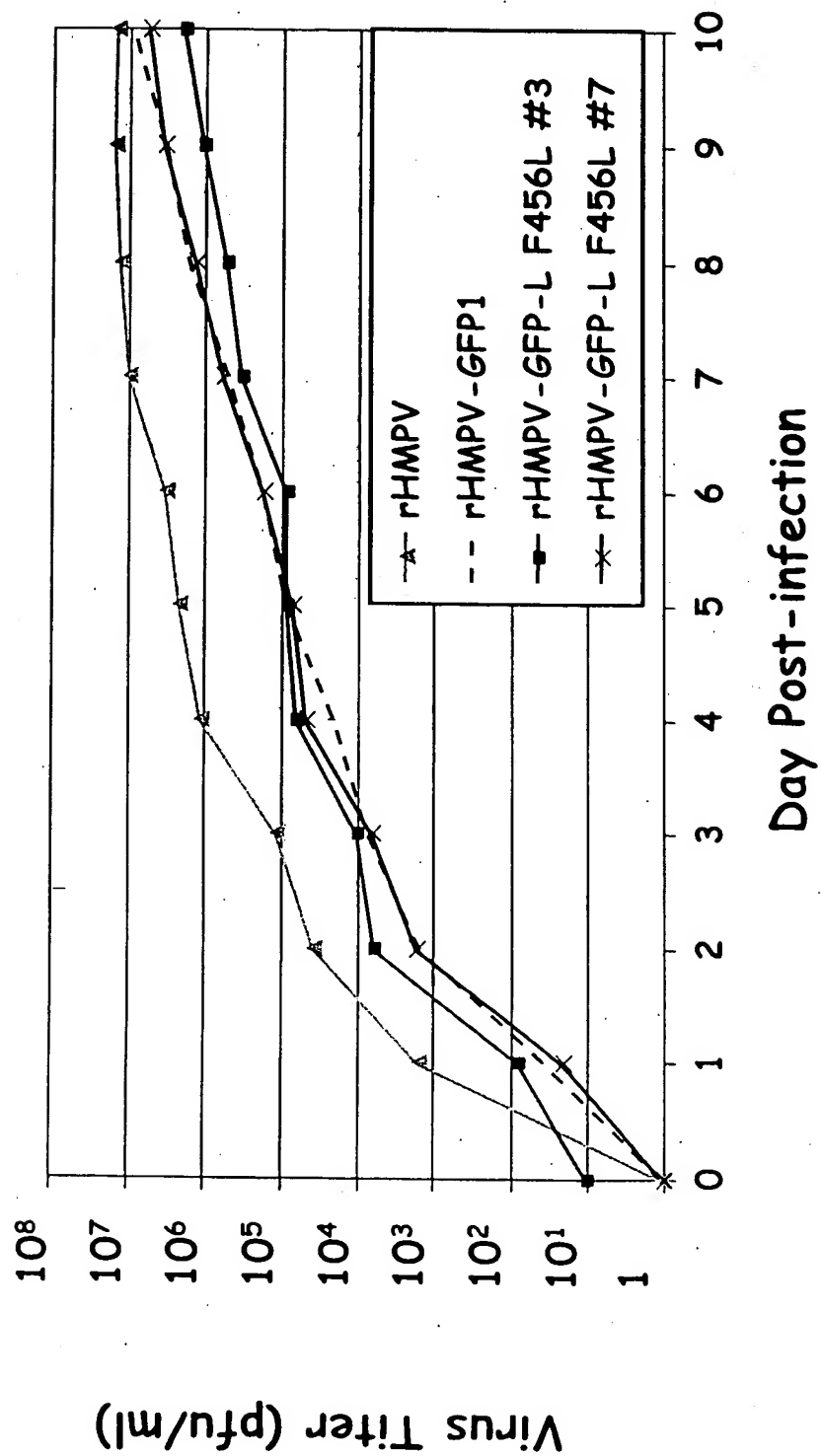


Fig. 27

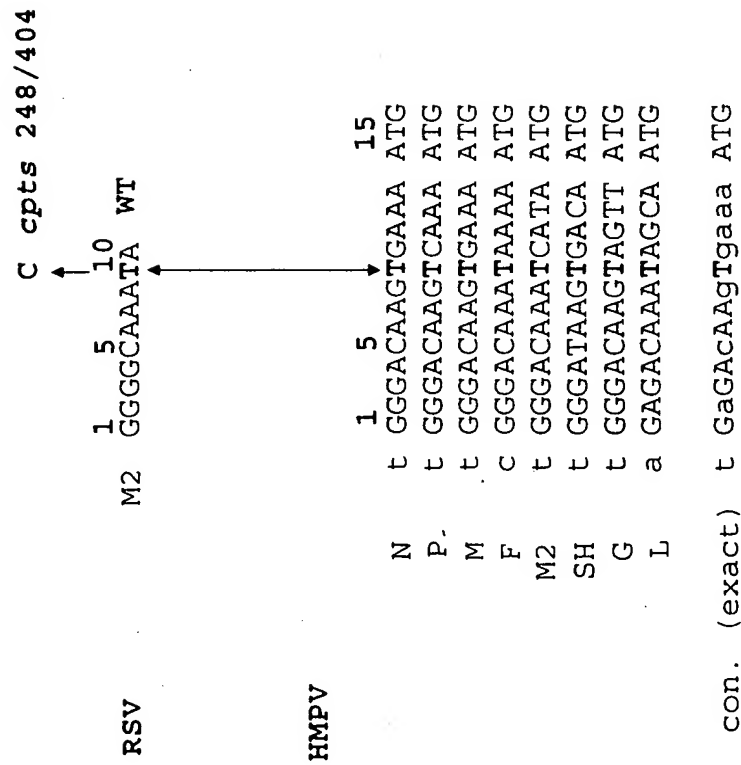


Fig. 28

**CAN97-83, 13,335 nucleotides**

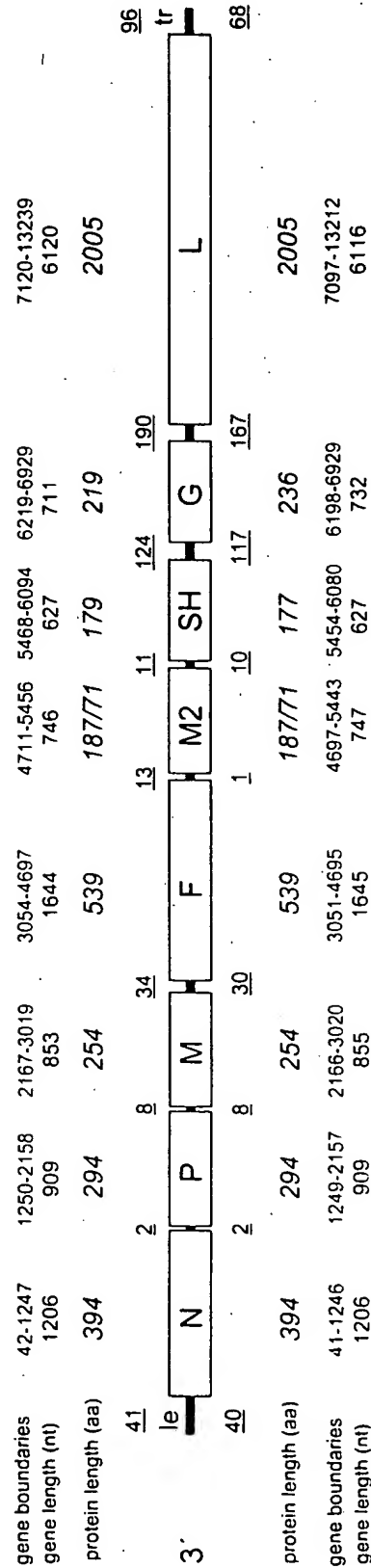


Fig. 29

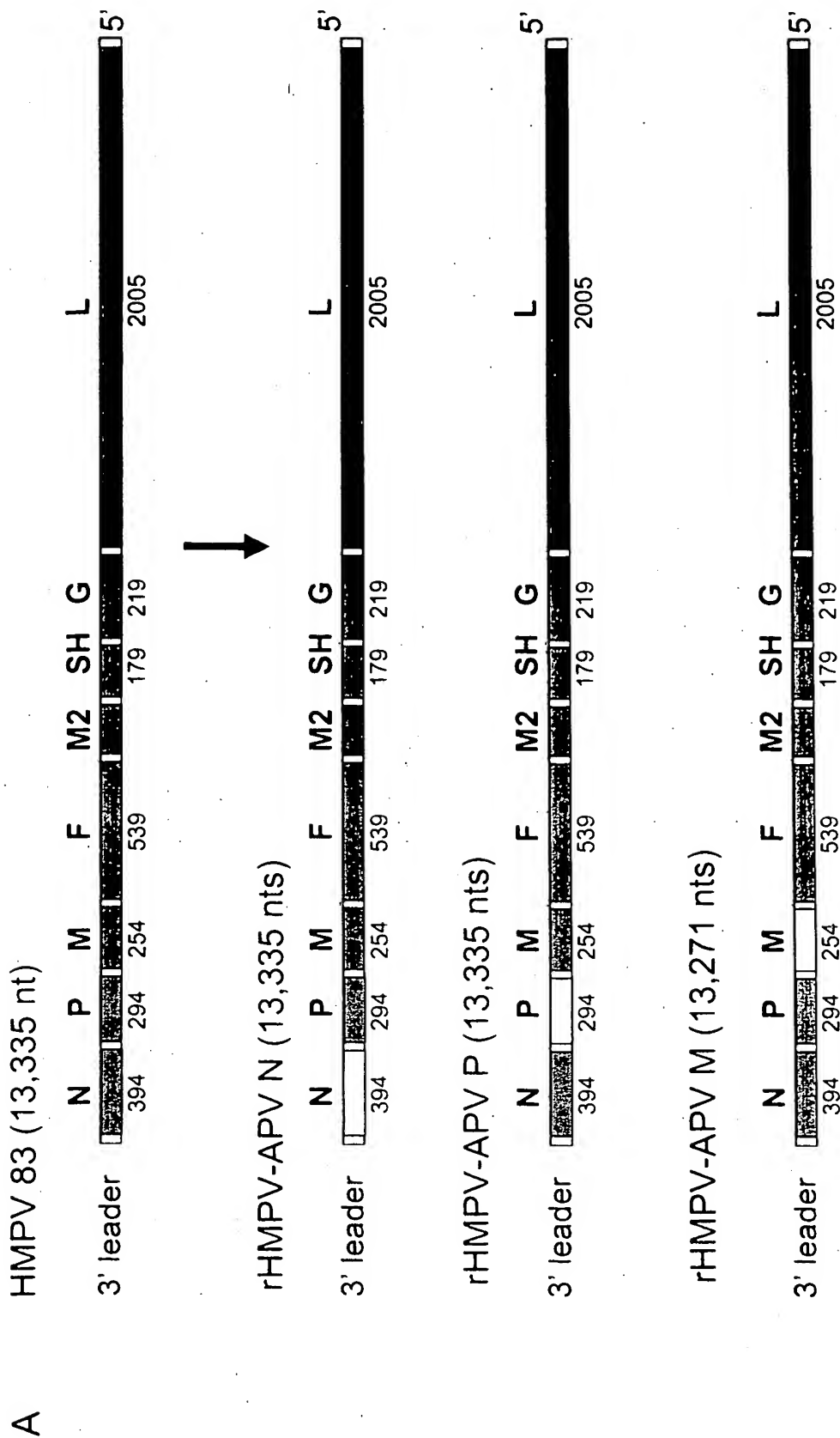


Fig. 30A

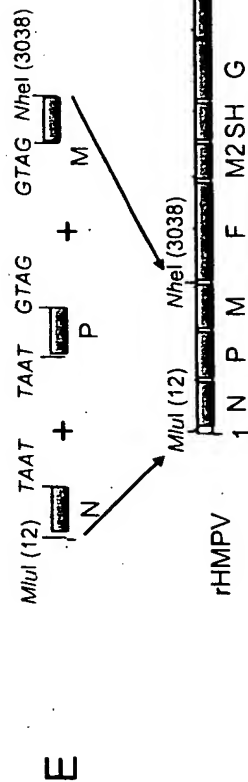
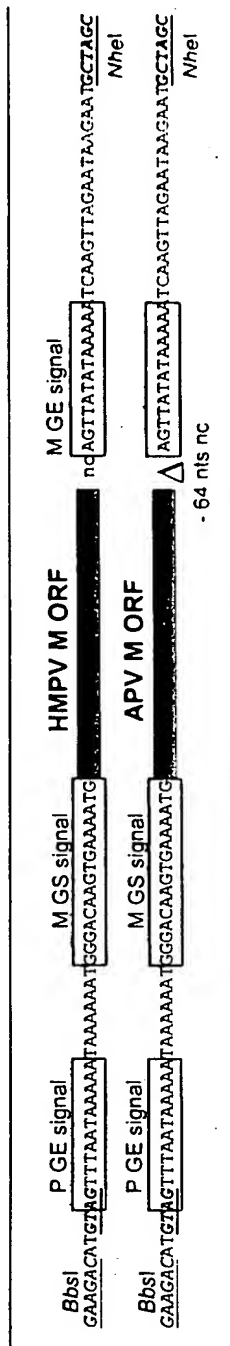
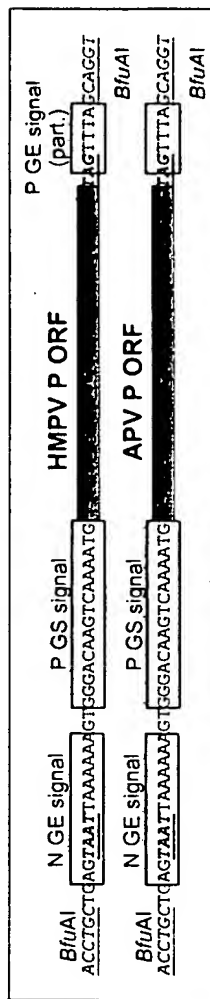
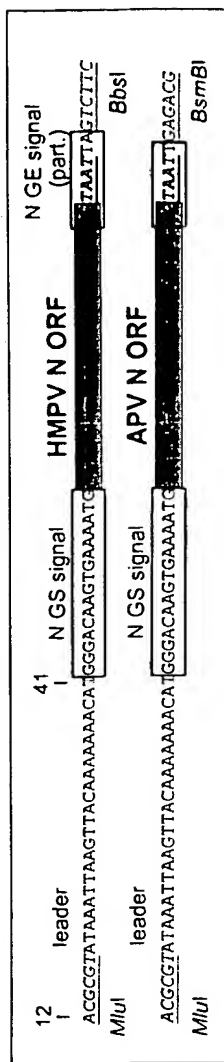


Fig. 30B-E



	gene-end	intergenic	gene-start
	<u>1</u> 13		<u>16</u>
le (83)	aattaAGTTAcaaaaaaacat		GGGACAAgTgAAATGtctct N (83)
(75)	aattaAaTTccaaACAAAAC-		GGGACAAaTaAAATGtctct (75)
N (83)	ttatgAGTAAttaAAAA--	gt	GGGACAAgTcAAATGtctatt P (83)
(75)	ttatgAGTAAttaAAAA--	ct	GGGACAAgTcAAATGtctatt (75)
P (83)	tatgtAGTTtaataAAAA--	taaaaaat	GGGACAAgTgAAATGgagtc M (83)
(75)	catgtAGTTtaataAAAA--	taacaat	GGGACAAgTcAagATGgagtc (75)
M (83)	attttAGTTAtatAAAA--	tcaag- 24 nt-agaac	GGGACAAaTaAAATGtcttg F (83)
(75)	atttatAGTTAtatAAAAAA	tttag- 20 nt-aaagc	GGGACAAgTaAAATGtcttg (75)
F (83)	cagttAGTTAattAAAA--	taaaataaaaattt	GGGACAAaTcAATGtctcg M2 (83)
(75)	tagttAGTTAattAAAAAA-	t	GGGACAAaTcAATGtctcg (75)
M2 (83)	acttaAGTTAGtaAAAA---	cacatcagagt	GGGAtAAgTgACAAATGataac SH (83)
(75)	acttaAGTTAGtaAAAA--	taaatagaat	GGGAtAAaTgACAAATGaaaaac (75)
SH (83)	agttttAGTTAttttAAAA--	tattt-114 nt-aatat	GGGACAAgTagttATGgaggt G (83)
(75)	agtctAGTTAttttAAAA--	ctcta-107 nt-aaaat	GGGACAAgTggccATGgaagc (75)
G (83)	aaattAGTTAacaAAAA--	tacga-180 nt-tccaa	GaGACAAaTagcAAATGgatcc L (83)
(75)	caagtAGTTAacaAAAAAA-	ctata-157 nt-ttcaa	GGGACAAaTaacAAATGgatcc (75)
L (83)	atgatAGTTAattAAAA--	ttaaa-91 nt	tr (83)
(75)	ccattAGTTAattAAAAAA--	ttata-63 nt	(75)
consensus	AGTTAnnnAAAAA		GGGACAAaTnnnAAATG

Fig. 31

Percent amino acid or nucleotide sequence identity between the indicated strains of HMPV or RSV for the indicated proteins and ORFs

Viruses compared	percent amino acid sequence identity for indicated protein (percent nucleotide sequence identity for indicated ORF)								
	N	P	M	F	M2-1	M2-2	SH	G	L
CAN97-83 vs CAN98-75	96 (84)	85 (81)	97 (85)	95 (84)	96 (85)	89 (87)	59 (69)	37 (59)	94 (84)
CAN97-83 vs 00-1	99 (94)	95 (92)	99 (94)	98 (94)	98 (94)	96 (95)	85 (88)	70 (77)	99 (95)
RSV A2 vs RSV B1	95 (85)	90 (85)	91 (85)	89 (81)	91 (84)	61 (69)	72 (77)	55 (67)	92 (85)

**Fig. 33A**

# B. G protein

CAN98-75	1	AR	F	KM	IRS	HR	T	S	AP	M	TL	DHA	54
CAN97-83	1	MEVKVENIR	AI	DM	LK	AR	VKNR	VAR	SK	CF	KN	AS	54
00-1	1	T										K	54
		**	*****	*****	*****	***	***	***	***	***	***	***	
CAN98-75	55	TS	NMTKV	CVNM	V	PS	KTPMT	AAD	NTK	P	QA	LT	DS
CAN97-83	55	IQKTSSE	SEHHT	SSP	P	TES	KNKE	AST	IST	DN	PD	IN	PN
00-1	55	M	NT		S	M	SR	TP	VP	S	T	SSP	GS
		*	*	*	*	*	*	*	*	*	*	*	*
CAN98-75	109	LEDHLH	GTTP	A	VSQQT	EH	TLLRSTNRQ	TQ	TAEKKP	TRATTKKET	1	62	
CAN97-83	109	SVSPSE	TEPAST	PD	T	TNR	LLSSVDR	STAQP	SESR	IKTKPTV	HTRN	NP	ST
00-1	109	A	SP	T	PPF	TH	TP	A	S	A	K	R	S
		*	*	*	*	*	*	*	*	*	*	*	*
CAN98-75	163	TT	I	ST	ATQ	LNT	NTQISNG	EA	AR	RNNA	SSDQ	TQ	ADPS
CAN97-83	163	PPRATT	KAIR	RAT	IFR	MS	STGKR	-PTT	TSVQ	SDS	STTTQ	NHEET	GSAN
00-1	163	RTA	T	L	T	R	-S	A	P	I	A	HKV	ASP
		*	*	*	*	*	*	*	*	*	*	*	*
CAN98-75	217	QHTQK	STTT	THNT	DT	SSPSS	-	236					
CAN97-83	216	TMQN	-	-	-	-	-	219					
00-1	216	TRIQR	KSV	EAN	IST	TYNQIS	-	236					

Fig. 33B

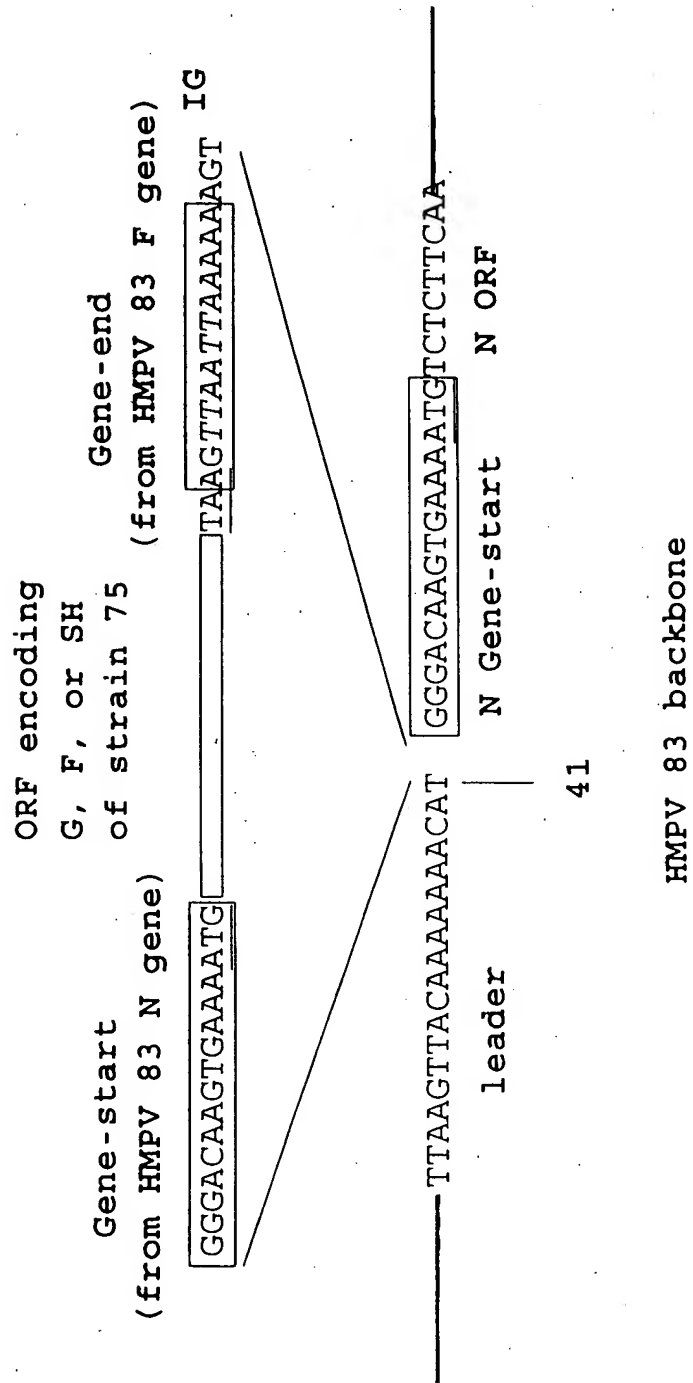


Fig. 34

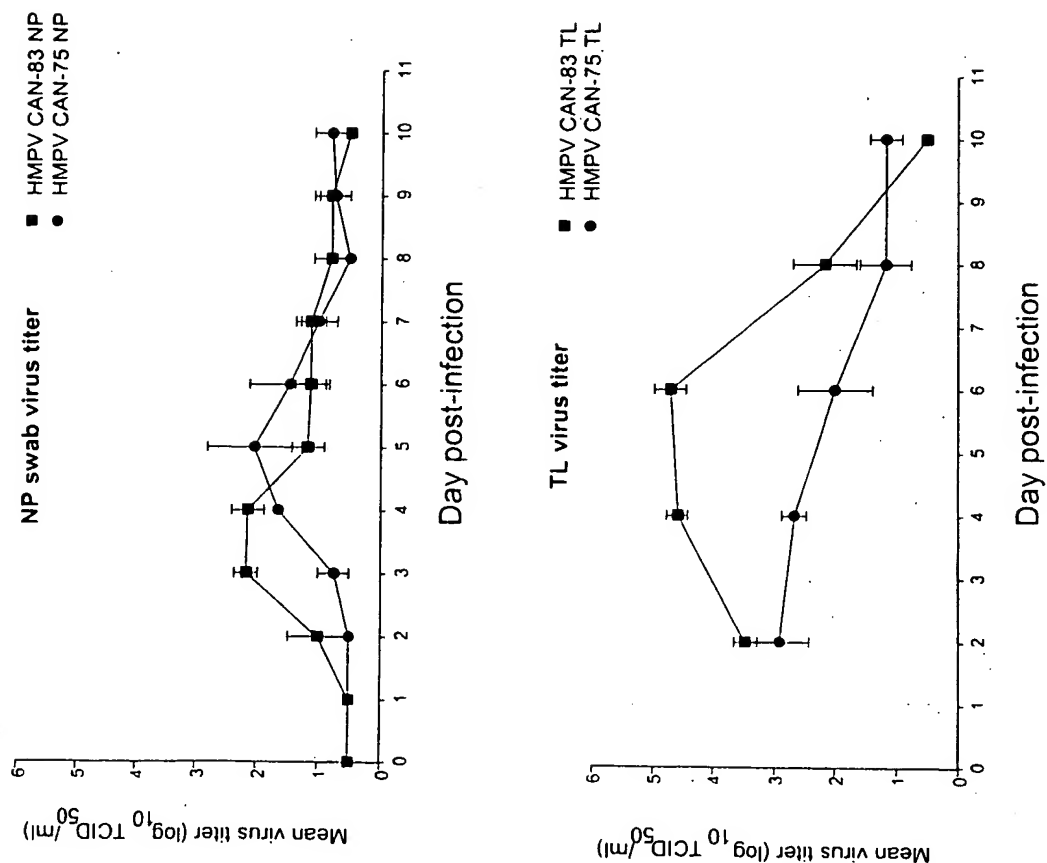


Fig. 35



HMPV strain 83

1	ACGCGAAAAA	AACGGGTATA	AATTAAGTTA	CAAAAAAACA	TGGGACAACT	50	GAATAATGCT	CTTCAAGGGA	TTCACTGAG	TGATCTATCA	TACAAGCATG	100
101	CTATATTAAA	ATAGTCTCAG	TATACATAAA	AGAGATGATG	AGGACACAAC	60	AGACGAGTGA	CACTCTATC	ATTGCAACAA	GAATAAACAC	TATTTGTGG	200
201	AGAAATTTCTA	TATGCTAAGC	ATGCTGATTA	CAATATGATG	CGAGCAATAG	70	GRATACAATA	TATTCTGACA	CTCTAGGAT	CAGAGAGAT	ACAGTAGAT	300
301	CTAAGAAACT	CAGGCAAGTG	AGTCCAAGTG	GTITTAACCA	GAACGTACTC	80	CTTGGGAAA	GTAAAAACA	ACAAAGGAGA	AGATTACAG	ATGTTAGACA	400
401	TACACGGAGT	AGAGAAAGC	TGGGTGGNAG	AGATAGACAA	AGNAGCAGA	90	AAACAATGG	CACTTTGCT	TAAAGAATCA	TCAGCAATA	TTCCACAAA	500
501	TCAGAGGCT	TCAGCACAG	ACACACCTAT	AATCTTATTA	TGTGTAGTG	100	CCTTAATATT	TACCAAACTA	GCATCAACTA	TAGAAGTGG	ATTAGAGACC	600
601	ACAGTCAGAA	GAGCTAACCG	TGTACTAAGT	GATGCACTCA	AAGATATCCC	110	TAGGATGAC	ATACCAAAA	TCGCTAGATC	TTTCTATGAT	TATTTGAAC	700
701	AAAAAGTGA	TTACAGAAAT	TTGTTCAATG	AGTATGGCAA	AGCATTAGCC	120	TCATCTCTTA	CAGGACGAA	AGCAGAAAGT	TTATCTGTTA	ATATATCAT	800
801	GCAAGCTTAC	GGTGTGGTC	AAACAATGCT	GAGGTGGGGA	GTCAATTGCCA	130	GGTCAITCTA	CAATATAATG	TTAGGACATG	TATCTGTCCA	AGCTGAGTTA	900
901	AAACAAGTCA	CAGAAGTCTA	TGACCTGGTG	CGAGAAATGG	GCCTGTAATC	140	TGGGCTCCTA	CAITTAAGC	AAAGCCCAA	AGCTGGAGTG	TTATCACTAG	1000
1001	CCAATTGTCC	CAACTTTGCA	AGTGTGTTTC	TCGGCAATGC	CTCAGGGCTTA	150	GGCATAATAG	GTATGTATCG	CGGAGAGATG	CCAAACACAG	AACATATTTT	1100
1101	AGCAGCAGAA	AGCTATGCCA	AGATTTTGA	AGNAGGCAAT	AAATTAAGT	160	TTTCTTCATT	AGACTCACA	GATGAAGAAA	AGAGGGCTGC	AGAACACTTT	1200
1201	CTAAATGTGA	GTACGACACAG	TCAAAATGAT	TATGAGTAAT	TAAAGAAAC	170	GGACAAGTCA	AAATGTCAAT	CCCTGAAGAA	AGAGATATTC	TTTTCTAGG	1300
1301	TAATGAAGCG	GCAAAATTGG	CAGAAGCTTT	CCAAAAATCA	TAAAGAAAC	180	ATTGTACAG	CCGAAGTTAG	CATGGACAGA	CAAAAGTGGG	GCAATCAAAA	1400
1401	CTGGAACAT	TGGAATTACC	TACTATCAGT	AGACCTACCA	AACCGACCAT	190	TTTACTGAGA	AAAGGTGCT	GCCTCCAGT	GATGGGAAA	CTCCTGCAGA	1500
1501	CTAAGCAGAA	GCAACAATTC	AGATGCAGAA	TAAGGGCTAT	TAAGGAAAC	200	CAAAATGAAC	AGTTCATCAT	TAAAGTTGG	AGAAAGATGC	TCTAGACTTG	1600
1601	AAAGAGTTG	AAACCATCAA	CCAATACTAA	AGATGCAGAA	TAAGGGCTAT	210	AGAAAGAGAT	ACTTCATCAT	TAAGCATTTG	ATCAGAGACTA	GAATCGATTG	1700
1701	CTTTTCAGACA	ATGAAGAAGA	AGATGCAGAA	TAAGGGCTAT	TAAGGAAAC	220	ACAGCAGGAC	CCACGACAG	AGAGATGAGG	ATCAGAGACTA	CAATGATTGG	1800
1801	AGGAGAAAT	AAGCATGATA	TAGGGCTAT	TAAGGAAAC	TAAGGAAAC	230	CAGCAGAAAT	GATGGAAGAA	GAATGAAC	AGCGACAAA	AATAGGAAAC	1900
1901	CATAGGGAG	GAATTAAGTA	CAGACATAAT	AAAGGCAAG	GAATGAAAC	240	AGACGAGAGC	CAAAAGTGGT	AAATCCGAAGA	AGAAAGGAA	CTAAAGACA	2000
2001	GGTAGTGTA	AAATTAAGTA	CAGACATAAT	AAAGGCAAG	GAATGAAAC	250	AATAAATA	AAATGGGA	CAAGTGAAGA	TGGAGTCCCTA	TCTGGTAGAC	2100
2101	CACAGGAAA	TAATCAAGAA	GATGACATTT	ACCAGTTAAT	TATGTAGTT	260	AAAGGACCTG	TTACCTGCAA	GCCTAACAAAT	ATGGTTCCCT	CTGTTTCAGG	2200
2201	ACCTATCAAG	GCATCCCTTA	CACAGCAGCT	GTTCAGTTG	ATCTAGTAGA	270	ACTACTCTGT	ATGCTGCATC	ACAAAGTGGT	CCAAATCTAA	AGTGAATGC	2300
2301	CAATACACC	ACCAGCAGTT	CTGCTTGATC	TCCCAAAAG	TTTGAAGTCA	280	ATGCGACTGT	AGCATTTGAC	GAATATAGCA	AATTAGAATT	TGACAACTT	2400
2401	ATCGGCCAG	GGTGACGAA	TGCTGTACT	TCCCAAAAG	TTTGAAGTCA	290	GTTACATATC	CAGCATTTAT	CAATCAGTT	TCTATCAAGG	AGAGTGAATC	2500
2501	ACATCTAAT	CGCATATGC	AGTTTATG	TAAGCAATGA	TAAGCAATGA	300	AAGCCAAAT	TGCACCTTAT	CGGGAGTGA	TCATGATTAT	GACCATGAAC	2600
2601	ATGCTCTAT	AGTAAATAC	AGTTTATG	TAAGCAATGA	TAAGCAATGA	310	AGAACTAGGA	GCATATGTC	AGGCTGAAG	CATAAGTAAA	ATATGCAAGA	2700
2701	AGCCACTGTT	GAAGCTGCAA	TAAGCAATGA	TAAGCAATGA	TAAGCAATGA	320	AGCAACTCTGA	CCAAGACTA	CCAATCTAT	TCTATAGACT	AAAAGTCCG	2800
2801	AATCCCAAG	GCATATTC	GAAGCTTGA	TAAGCAATGA	TAAGCAATGA	330	AACGGGACAA	ATAAAGTGT	CTTGAAGT	GGTGATCAAT	TTTTCATTG	2900
2901	CTTGAGGCA	TCAAGGACCA	AGATATGTC	TGAAGTCCAG	ATAACAGCCA	340	AGCATATAA	CTAGAGTGA	TCTTAGTGT	GTGAGGACAG	GTGGTATAC	3000
3001	CAITTTAGT	ATATAAAT	CAAGTTAGNA	TAAGCAATGA	TAAGCAATGA	350	ATGAGATCCC	AGACAATCTA	GGTTGTTCT	AGAGCAATA	GCATCTGGT	3100
3101	TAATAACACC	TCAACACGGT	CTTAAGAGA	GCTACCTTAA	AGATCAATGT	360	CGGCTTGAGA	GTGAAGTCA	AGCAATTAAG	AATGCCCTCA	AAACGACCAA	3200
3201	CAACGTTTTT	ACATTAGAGG	TGGGTGATGT	AGAAACCTT	ACATGTTCTG	370	TGAGAGAGCT	GAAGACTTTT	GTGAGCAAGA	ATTTAACTCG	TGCAATCAAC	3300
3301	AGAGAGCTCA	AAACAGTCTC	TGCTGACCAA	TTGGCAAGAG	AGGAACAAAT	380	ATTCAACAGA	AGGTTTCTAA	ATGTTGTGCG	GCATTTTCA	GACATGCTG	3400
3401	TTGCAACAGC	AGCTGCAGTC	ACAGCAGGTT	TTGCAATG	CAAAACCATC	390	ATTCACAGCT	AGGTTTCTAA	ATGTTGTGCG	GCATTTTCA	GACATGCTG	3500
3501	TGAGCAGCTA	TCTACATG	GGAATGGAGT	TGAGGTTG	GCAACTGCAG	400	AGGGCGGCTT	CTAACATGCC	GACATCTGCA	GCACAAATAA	AAITGATGTT	3600
3601	AAACAACAGT	GGCAGATTGA	TGACCTAAA	ATGGCGTTA	GCTTCACTCA	410						3700
3701	GAATAACACC	AGCAATATCT	TTGACTTAA	TGACAGATGC	TGAAGTAGCC	420						3800

Fig. 37A



HMPV strain 83 (continued)

3801	GGAGAACCGT	GCGATGGTGC	GAAGAAAGGG	GTTCCGAATC	CTGATAGGGG	TCTACGGGAG	CTCCGTAATT	TACATGGTGC	AGCTGCCAAT	CTTTGGCGTT	3900
3901	ATAGACACGC	CTTGCTGGAT	AGTAAAGCA	GCCCCTTCTT	GTTCGGAAA	AAAGGAAAC	TATGCTGCC	TCCTAGAGA	AGACCAAGG	TGTTATGTC	4000
4001	AGATCGAGG	GTCAACTGTT	TACTACCAAT	ATGAGAGAA	GTTCGAAACA	AGAGGAGCC	ATGCTTTTG	CGACAGACA	CGCGGAATTA	ATGTTGCTGA	4100
4101	GCAATCAAG	GAGTGAACA	TCAACATAAC	CACATACAAAT	TACCCATGCA	AAGTCAGCAC	AGGAACACAT	CCTATCAGTA	TGGTTGCACT	GTCTCTCTT	4200
4201	GGGCTCTGG	TGCTTGCTA	CNAAGGAGTA	AGCTGTCCA	TTGGCAGCAA	CAGAGTAGGG	ATCATCAAGC	AGCTGAACA	GGGTTGCTCC	TATATAACCA	4300
4301	ACCAAGATGC	AGACACAGTG	ACNATAGACA	ACACTGTATA	TCAGCTAAGC	AAAGTTGAGG	GTGAACAGCA	TGTTATAAAA	GGCAGACCAG	TGTCAAGCAG	4400
4401	CITTGATCCA	ATCAAGTTTC	CTGAAGATCA	ATTCAATGTT	GCATTTGACC	AAAGTTTGA	GAACATTGAA	AACAGCCAGG	CCTTGGTAGA	TCATCAAAAC	4500
4501	AGATCCTTAA	GCAGTGCGA	GAAGGGAAT	ACTGGCTTCA	TCATTTGAAT	AATTTCTAAT	GCTGCTTGG	GCTCTAGCAT	AGCTCTTCA	AGCATCTTCA	4600
4601	TTATAATCAA	GAAACCAAG	AAACCAACGG	GAGCACTTCC	AGAGCTGAGT	GGTGTACAAA	ACAATGGCTT	CATACCACAC	AGTTAGTTAA	TTAAAAATAA	4700
4701	AATAAAATTT	GGGACAAATC	ATAATGTCTC	GCAAGGCTCC	ATGCAAAAT	GAAGTGGGG	GCAATGCAA	CAGAGGAAGT	GAGTGTAAAT	TTAACACAAA	4800
4801	TTACTGGAGT	TGGCCAGATA	GATACTTATT	AATAAGATCA	AACATCTAT	TAAATCAGCT	TTTAAGGAAC	ACTGATAGAG	CTGATGGCCT	ATCAATAATA	4900
4901	TCAGGCGGAG	GCAGAGAAGA	CAGAACGCAA	GATTTTGTTC	TAGGTTCCAC	CAATGTGGTT	CAAGGTTTAA	TTGATGATAA	CCAAAGCATTA	ACAAAGCTG	5000
5001	CAGCTGCTA	CAGTCTACAC	ACATAATCA	AGCACTACA	AGAATGTAA	GTTAGCAGG	CTAGAGATAG	CAAACTATCT	GACAGCAAGC	ATGTGGCACT	5100
5101	CCATAACTTA	ATCTTATCTT	ACATGGAGAT	GAGCAAACT	CCCGCATCTT	TAATCAACAA	TCTCAAAAGA	CTGCCGAGAG	AAAACTGAA	AAATTAGCA	5200
5201	AACTGATATA	TTGACTTATC	AGCAGCGCT	GACAATGACT	CTTCTATGCT	CCTGCAAGAC	AGTGAAGCA	TTAATCAAGT	GCAGTGAGCA	TGGTCTGTT	5300
5301	TTTCACTACTA	TAGAGGTTGA	TGAATGATA	TGGACTCAA	AAGAATTAAA	AGAAGCTTTG	TCCGATGGGA	TAGTGAAGTC	TACACCAAC	ATTACAAAT	5400
5401	GTATTTTAGA	AAACATAGAA	ATTATATATG	TCAAGGCTTA	CTTAAGTTAG	TAAAAACACA	TCAGATGGG	ATAAGTGACA	ATGATAACAT	TAGATGCTAT	5500
5501	TAAAGTGAT	GGGTCTTCAA	AAACATGTAC	TCACCTCAA	AAATATATCA	AAGACCATTC	TGGTAAAGTG	CTTATTGCAC	TTAAGTTAAT	ATTAGCTTAA	5600
5601	CTAACATTTT	TCACAATTAAC	AATCACTATA	AATTACATAA	AAATGAAAA	ACACAGTATT	TTAAAGATT	AATTTCAAGG	TATACAGATT	CTGTAAATAA	5700
5701	CATCAAAATAC	CACATCCGTC	ACACCAAGA	CCACTGTAGA	CCATGATATA	CATATAAAT	TTTATGCTT	AAACCTGAGG	ACTCAAAAT	CAACAGTTGT	5800
5801	CAAGGACACA	TGCTGGAAAA	TAAGCAGAAA	TCAATGCACA	AAATATAACA	ATATCATACA	GTAGATGCG	ATTGCATATA	CACAAATTAG	TGGNAGTGT	5900
5901	ATAGACTGCA	CAGATCTATG	CAGAAACAAA	TCAAATCAG	CAGCTGAAGC	GATCCGCTTA	AGACTATCAG	TTCAATAGTT	TAGTTATTTT	AAAAATTTT	6000
6001	ATACACCATG	AATAGATTAA	ACCCAATCTT	GAATGTAAA	ACTAGACTAG	GCTTAATTTAT	AATTAACAA	TTATTTAAAA	TCGTAACAT	TTAATTTACA	6100
6101	AGATAGGTA	AGTTCTATG	GCATTTCTATA	GCAATAGGTA	ATAATTAAACA	ACATTCGAGC	AATAGACATG	CTCAAGCAA	GAGTGAANA	TGGTGGCA	6200
6201	AGTAAAAAC	AAATATATGG	GACAGTAGT	TATGGAGGTG	AAAGTAGAGA	ACTGAGTATA	GCTCTCAATA	TCTATCTGAT	CATAAATCTAC	ACAAATACAA	6300
6301	CGTAGCAAT	GCITTTAAAA	TGCTTCTTTA	ATCCTCATAG	GAATTAACATC	AACAAGGAAG	CTTCAACAT	CTCCACAGAC	AACCCAGACA	TCAATCCAAA	6400
6401	AAACCTCATC	TGAATCAGAA	CACCACACCA	GCTCACACC	CACAGATCC	CAGCATCAAG	GAGCCCATCA	GAACACAGAC	CAGCATCAAC	ACCAGACACA	6500
6501	CTCACAGCAT	CCAATCAAC	AGTCCACAGA	AAACCCACA	CTCAACCCCG	CAGACACAAAG	ACAAAACCGA	CAGTCCACAC	AGAAACAAAC	CCAAGCACAG	6600
6601	ACAAACCGCC	TGTCTCTCCG	AGACAGGTCC	ACAGCACAA	CAAGTGAAG	GCCACCACTT	TCCGCTAGAG	CAGCACAGGA	AAAAGACCAA	GCACACCAAC	6700
6701	CTTCCAGTAC	ACATCCCCA	CCACGGGCAA	CAACGAGGC	AATCCGAGA	CAGCGAACCC	ACAGGACTCT	GTAAAGCAAA	TGCAAAACTA	GCACACCAAC	6800
6801	AGTCCAGTCC	GACAGCAGCA	CCACAACCCA	AAATCATGAA	GAACAGGTT	AACATGTAGT	TACCAACAT	CAAGAACCA	AAAGACAACT	CACAATCTCC	6900
6901	AAATATAAAC	CAAAATAGTT	AACAAAATAT	ACGAGATAGC	TCTAAAGTAA	CCACTTGTTA	ATGCTATCT	CCCTGATTCG	TACCTTAAG	GAGTAATTTT	7000
7001	CTAAACACAG	ACGATCCAG	AGACAAATAG	CAATGGATCC	TCTTAATGAA	TAAAAAATGA	CAACACTGCA	AAAGTTGCCA	TAGAGAATCC	TGTTATTGAG	7100
7101	TGCGCAAAAC	AGCATCCAG	TTGTTTCAATG	TCTCTTAAA	AGACCTACT	CAAGGTAGTA	GAGCCAGTAA	ATATGATATG	TGAATTAATG	AGAAATGTAC	7200
7201	TTTATGTA	ACTAATGCAA	AGTCAATTTCT	AAAATGAAAA	TATCATGATA	ATTAGCACTC	TCAAATGAA	TATGATATGT	GATGGCTGC	AATTAAGTAC	7300
7301	CATGTTGAGAC	TCAAAATATG	AGTCAATTTCT	AAAATGAAAA	TATCATGATA	ATTAGCACTC	TCAAATGAA	TATGATATGT	GATGGCTGC	AATTAAGTAC	7400
7401	ACAGTTGTA	GCTCACACTA	TTGAACACAGT	TTTTAACAG	GAGTAAACAC	CTAGTGGGT	AAGCAACTGG	TTTAGTAAT	GGTACAATCT	CAATAAGTTA	7500
7501	TACATTCAGAT	GATACCTCAA	TCCTAAGTTT	CATAGATGTA	GAATTTATAC	CAGGTCATTG	GGTAAATTAG	TTTTTATTGT	ATCATCATAT	GGATGATCG	7600
7601	ATTTTGGAAAT	TCAGAAGAGA	GGAAGTAATA	AGAACGGTT	CAATCTTATG	TTAACATGGA	AAGATGTGAT	GTAAAGTAGA	TTAATGCGA	ATTTTGTAT	7700
7701	TCAGAGGCAA	CAAAAGCAA	AGAGTGAGCT	TCTTCACATA	CAATCAACTG						

Fig. 378

HMPV strain 83 (continued)

7801	ATGGGTAAAGC	AATAGTCTGA	ATGAAATATCA	GGAGGGGCTA	GGGTGAGAA	GTAATCTGCA	AGGTATGTGA	ACTAATAAAC	TATATGAAC	TGTAGATTAT	7900
7901	ATGCTAAGCT	TATGTTGCAA	TGAAGGTTTC	TCATCTGTGA	AGAAGTTTCA	AGGTTTAT	ATGAGTGA	TCCTTAGGAT	TACTGAACAT	GCTCAATTCA	8000
8001	GTACTAGATT	TAGAAATATG	TATTTGAATG	GATTAAACGA	TCAATTAACA	AAATTAATA	ATAAAACAG	ACTCAGAGTT	CATGATACC	TAGTAGAAA	8100
8101	TAATGATTAT	CCATGTATG	AAGTTGACT	TAAATATTGA	CGATATACTT	TGAGATGAT	CAATTAATTA	ATCAATAAAA	ACTTAGAGAA	TGCTGACAAA	8200
8201	TTATACTATA	TATTCAGAA	TTTTGGTCAT	CCATGGTAG	ATGAAAGAGA	TGCAATGGAT	GCTGTCAAT	TAAACAATGA	ATCACAAA	ATCCTAAGGT	8300
8301	TGGAGAGCTT	GACAGAACTA	AGAGGGGCAT	TCATATTAA	GATTATCAAA	GGATTTGGG	ACAAACAAA	AGGTGGCCC	AAATTAATA	ACTTAAAGT	8400
8401	GCTTAGCAAA	AGTGGACTA	TGTACTTCAA	AGCTAAAT	TACCCAGTC	AACTCGAAT	AGTGAACAA	GACTTCTAG	AGCTTCTGC	AATACAAAT	8500
8501	GAACAAGAGT	TTCTGTTC	TGAATAAAC	ATCTTGAGA	TGGTATTAA	TGACAAAGCC	ATATCCTCA	AACAAGAAT	ATATGGTCT	GTGTATCCAA	8600
8601	AGATTAATTA	TTTGATCAA	AGGAACITAA	AGTTATGTA	GTTAGACAA	AAATTTTAA	CGATAAGGAG	CACATTGTCT	GTACTAGAT	ACTATTTAAA	8700
8701	AGATTAATTA	TTTGATCAA	AGGAACITAA	AGTTATGTA	GTTAGACAA	AAATTTTAA	CGATAAGGAG	CACATTGTCT	GTACTAGAT	ACTATTTAAA	8800
8801	GAATTAAGTG	TAGGTAGAA	TTTGCTATG	CAACAGGAA	AACAGCGACA	AAATCAAA	TTGCGAGAAA	AAATGTTAGC	TGATAACAT	GTACCTTTCT	8900
8901	TCCCGAAGC	CTTAACAAAG	TATGGTGATC	TAGATCTTCA	GAGAATAATG	AAATCAAA	TTGCGAGAAA	AAATGTTAGC	TGATAACAT	GTACCTTTCT	9000
9001	TAATTAATAC	ATTGCAAGAG	CATCCATAGT	AACAGATTG	AGCAAGTTCA	TAATCACTAC	ATGATATGTG	CCTATAGACA	TGACACACCA	GAACAAAG	9100
9101	GAATTAATAC	ATTGCAAGAG	CATCCATAGT	AACAGATTG	AGCAAGTTCA	TAATCACTAC	ATGATATGTG	CCTATAGACA	TGACACACCA	GAACAAAG	9200
9201	GTGAATATGA	TATAGATAAG	ATAGAAGAGC	AAAGTGGTCT	ATATAGATAT	CACATGGGG	GTATTAAGG	ATGGTGTCAA	AACTCTGGA	CAATGGAAGC	9300
9301	TATATCTTGA	TTGGATGTG	TATCTGTAAA	GACACGGTGT	CAATAGACAT	CTTTATTAA	CGGTGACAA	CAATCAATAG	ATGTAAGTAA	ACCAGTCAAG	9400
9401	TATCTGAAG	GTTTGAATGA	AACATATATA	TCAAGGGATC	GATTATCGCT	TAGCAGTAAA	AAATGCTAAA	GAATAAGAG	ATGCATACAG	AAATATAGG	9500
9501	AAGAAGGGGA	GAATATATGA	CAATATTTAG	TGACATTTAA	ACTAGTGTG	AAATCAATCTG	AGGAGTGTG	GCATCTTACC	CCTATAAAA	AGGCTTTGAG	9600
9601	AGTAGGACCA	TGGATAAACA	CAATATTTAG	TGACATTTAA	ACTAGTGTG	AAATCAATCTG	AGGAGTGTG	GCATCTTACC	CCTATAAAA	AGGCTTTGAG	9700
9701	ATAGTTAGTC	TGATATTAAG	AACTTCTGG	CTGTATACT	TATACATGCA	TGAATCAAG	CAATCTCTT	TGGCAGGAA	ACAGTTATTC	AAACAACATA	9800
9801	ATAAACAAT	AACATCAGTG	CAGAGATTTT	TGAAATTTAA	AGGGAAAT	GAGGTAGTAG	ATCTATGGAT	GAACATACCA	ATGCAATTTG	GAGGAGGAGA	9900
9901	TCCAGTAGTC	TTCTATAGAT	TTTCTTAG	AAGGACCCCT	GATTTTAA	CTGAGGCAAT	CAGCCATGTA	GATATTTCTG	TAAATAATATC	AGCTAACATA	10000
10001	AAAAATGAA	CGAAAGTAAG	TTTCTTCAA	GCCTTACTAT	CAATAGAAA	AAATGAAGCT	GCTACACTGA	CAACACTAAT	GAGAGATCCT	CAAGCTGTTG	10100
10101	GATCAGAAC	ACAAGCAAAA	GTAACAAGTG	ACATCAATAG	AACAGCAGTT	ACCAGTATCT	TAAGTCTTTC	CCCAATCAA	CTTTTCAGT	ATAGTGTCTAT	10200
10201	ACACTACAGC	AGAAATGAAG	AGAAGTGGG	AATCATTTGA	GAACACATAA	CACCTGTTTA	TCTCATGGG	CTGAGAGTAT	TATATGAATC	ATTGCCCTTT	10300
10301	CACAAAGCTG	AAAAAGTTGT	AAACATGATA	TCAGGGCAA	AATCTATAAC	CAACTTTATTA	CAGAGAACAT	CCGCTATTAA	TGGTGAAGAT	ATTGACAGGG	10400
10401	CTGTATCTAT	GATGTTGGAG	AATCTAGGAT	TATTATCTAG	AATATTGTCA	GTAAGTTTGG	ATAGTATAGA	AATCTCAATC	AAATCTAATG	GTAGGCTGAT	10500
10501	ATGTTGTCAA	ATCTCTAGGA	CTTTAAGAGA	GACATCATGG	AATAATATGG	AAATAGTTGG	AGTAACATCT	CCTAGCATCA	CTACATGTAT	GGATGTCATA	10600
10601	TATGCAACTA	GTTCTCATTT	GAAGGGGATA	ATTATAGAAA	AGTTCAAGAC	TGACAGAACT	ACAAGGGTTC	AAAGAGCCCT	AAAAGCCCT	TGGGTAGGGT	10700
10701	CGAGTACTCA	AGAGAAAAA	TTAGTACCTG	TTTATACAG	ACAAATCTC	TCAAAACAC	AAAGAGAAC	GCTAGAGCA	ATTGGAAAA	TGAGATGGGT	10800
10801	GTATTAAGGG	ACACAGGCT	TGCGAGGAT	ACTCAACAG	ATCTGCTGTG	GGAGTTTAGG	CATTAGCTAC	AAATGTGTA	AACCTTTAT	ACCTAGGTTT	10900
10901	ATGATGTAA	ATTTCTTACA	TAGATTATCT	GTCAGTGA	GACCTATGGA	ATTCCTGAG	TCAGTCTCAG	CTTATAGAAC	ACAAATTAAC	CAATTCGACA	11000
11001	CTAGTCTCTAT	TAATCAAGCA	CTAAGTGA	GATTTGGAA	TGAAGATATT	AACCTGGTCT	TCAAAATGAG	AATCAGCTGT	GGAAATAGCA	TATAGAGTCT	11100
11101	AGTAGAACAA	TTAACAGGTA	GAAGCCCAA	ACAGTTAGTT	TTAATACCCC	AATTAGAGA	AATAGACAT	ATGCCACCAC	CAGTGTTC	AGGAAATCT	11200
11201	AATTATAAAT	TAGTAGATAA	GATACTTCT	GATCAACATA	TCTTTAGTCC	GGACAAATA	GATATGTTAA	CACATAGGNA	AATGCTCATG	CCCACATAA	11300
11301	AAGTACAGAA	AACAGATCAG	TTCTTAATA	AGAGAGAAA	TTATTTCCAT	GGAAACAATC	TTATGAGTC	TTATCAGCA	GCATTAGCAT	GTCATTGGTG	11400
11401	TGGATATTA	ACAGAACAA	GCATAGAAA	TAATATTTT	AAGAAGACT	GGGTGACGG	GTTTATATCA	TAGTAGATGA	ATCAATAGAT	CAAAATTTT	11500
11501	CTATGTGCT	TTAAACTAA	ACTTTATGT	AGTTGGGG	CTCAAGGAA	AAACATTA	GATTAAGATA	TAGTAGATGA	ATCAATAGAT	CAAAATTTT	11600
11601	GGATTGACAA	TACTTTTGG	AGAATGTTCA	GCAAGTTAT	GTTTGAACCA	AAGGTTAAGA	AAAGGATAAT	GTTATATGAT	GTAAATTTCC	TATCACTAGT	11700
11701	AGGCTACATA	GGGTTAAGA	ACTGGTTTAT	AGAGCAGTTG	AGATCAGCTG	AATTGCAATGA	AATACCTTGG	ATTGCTCAATG	CCGAGGTTGA	TTTGGTTGAG	11800

HMPV strain 83 (continued)

11801	ATCAAGTCAA	TTAAATCTA	TTTGCAACTG	ATAGAACAAA	GCTTATTTT	AAGAATAACT	GTTTGAAC	ATACAGATAT	GGCACATGCT	CTCACACGAT	11900
11901	TAATCAGAAA	GAAGTTAATG	TTGTAATATG	CACGTGTTAC	CCCAATTTCA	TCCCAATG	TTAACTTAAC	TCAAGTTATT	GATCCACAAA	CACAATTAGA	12000
12001	TTACTTCCCC	AAGATAACAT	TCGAAAGGCT	AAAAAATTAT	GACACAAGTT	CAAATTAATG	TAAAGGGAAG	CTAACAGAA	ATTACATGAT	ACTATTGCCA	12100
12101	TGGCAGCATG	TTAATAGATA	TAACTTTGTC	TTTAGTTCTA	CTGGATGTAA	AGTTAGTCTG	AAAAACATGTA	TTGGAATACT	TATGAAAGAC	CTAATCCTTA	12200
12201	AAGTTTGTGA	CTTTATTGGA	GAAGGAGCAG	GAAATTGGAT	GGCCAGAACAA	GCATGTGAAT	ATCCTGATAT	TAAATTTGTA	TATAGAGTC	TGAAGATGA	12300
12301	CCTTGATCAT	CATTATCCTC	TGGAATACCA	GAGAGTGATA	GGTGAATTAA	GCAGAAATCAT	AGATAGTGGT	GAAGGACTTT	CAATGGAAC	AACAGACGCA	12400
12401	ACTCAAAAAA	CTCATTTGGA	TTTGATACAC	AGGTAAGCA	AGATGCTTT	ATTAATAACT	TTATGTGATG	CAGAAATTTAA	GGACAGAGAT	GATTTTITTA	12500
12501	AGATGGTAAT	TCTATGGAGA	AAACATGTAT	TATCATGCAG	AATTTGCAT	ACTTATGGA	CGGACCTCTA	TTTTATCGCA	AGTATCATG	CTAAAGACTG	12600
12601	CAATGTAAAA	TTACCTTTT	TTGTGAGATC	AGTTGCTACT	TTCAATTATG	AGGTAGTAA	GCTGTCAGGT	TCAGAAATGCT	ACATACTCTT	AACACTAGGC	12700
12701	CACCAACAAA	GTTTACCTTG	CCATGGAGAA	ATACAAAATT	CTAAGATGAA	AATAGCAGTG	TGTAATGATT	TTTTATGCTG	AAAAAACTC	GACAATAAAT	12800
12801	CAATTGAAGC	TAATTGTAAA	TCACCTTTTG	CAGGCTTAG	AATACCTATA	AATAAGAAAG	AACTAGATAG	ACAGAGAAGA	TTATTAAACAC	TACAAAGCAA	12900
12901	TCATTCTCT	GTAGCAACAG	TTGGCGGTAG	CAAGATCATA	GAGTCTAAGT	GGTTAACAAA	CAAGCAAGT	ACAATAATTG	ATTGGTTAGA	ACATATTTTA	13000
13001	AATTCCTCAA	AGGGCGAATT	AAATTATGAT	TTTTTTGAAG	CATTGGAGAA	CACCTTACCCT	AATATGATTA	AACTTAGGG	TAACTTAGGG	AATGCAGAGA	13100
13101	TTAAAAAACT	GATCAAGATA	ACAGGATACA	TGCTTGTAG	TAAAAAATGA	AAATGATGA	AGATGACAAA	ATAGATGACA	ACTTCATACT	ATTCTAAAT	13200
13201	AATTATTGTA	TTATGCAATT	ATATGATAGT	TAATTAAAT	TAAAAAATTAA	AAATCAAAAG	TTAAAAATTTA	AAACCTATCA	TTAAGTTTAT	TAAAAATAAG	13300
13301	AAATTATAAT	TGAATGTATA	CGGTTTTTTT	GCCGT							13335

Fig. 37D

rHMPV - GFP

1	ACGCGAATAA	AACCGGTATA	AATTAAGTGA	CAAAAATAA	TGGGACAAGT	GAATAATGGT	AGCAGGGGCG	AGGAGCTGTT	CACCGGGGTG	GTGCCCCATC	100
101	TGGTCGAGCT	GGACGGCGAC	GTAAACGGCC	ACAAGTTTCAG	CGTGTCCGGC	GAGCGCGAGG	GCAGTGGCCAC	CTACGGCAAG	CTGACCTGTA	AGTTTATCTG	200
201	CACCAACGGC	AGACTGGCCG	TGCCCTGGCC	CACCTCTGGT	ACCACCCCTGA	CTTAGCGGGT	GCAGTGGCTTC	AGCGGTACC	CCGACCATAC	GAAGCAGCAC	300
301	GACTTCTTCA	AGTCCGGCCAT	GCCCGAAGGC	TACCTCCAGG	ACCGACCCAT	CTTCTTCAAG	GACGACGGCA	ACTACAAGC	CCGCGCGGAG	GTGAAGTTTCG	400
401	AGGGCGACAC	CCTGGTGAAC	CGCATCGAGC	TGAAGGGCAT	CGATTTCAG	GAGACGGCA	ACATCTCTGG	GCACAAGCTG	GAGTACAACT	ACAACAGCCA	500
501	CAACGTCTAT	ATCATGGCCG	CAAGCGAGAA	GAACGGCATC	AAGGTGAAT	TCAAGATCCG	CCACAACATC	GAGGACGGCA	CGGTGCAGCT	CGCCGACCAC	600
601	TACGACGAGA	ACACCCCCAT	CGCGGACGGC	CCCGTGTCTG	TGCCGGACAA	CCACTACCTG	AGCACCCAGT	CGCCCTGAG	CAAGACCCC	AACGAGAAGC	700
701	GGATACATCT	GGTCTGTGTC	GAGTTCGTGA	CCCGCGCCGG	GATCACTCTC	GGCATGGACG	AGTGTACAA	GTAAGTTAAT	TAAAAAGTG	GGACAAGTGA	800
801	AAATGICTCT	TCAAGGGGAT	CACCTGAGTG	ATCTATCAT	CAAGCATGCT	ATATTAAAG	AGTCTCAGTA	TACAATAAG	AGAGATGTAG	GCACAACAAC	900
901	AGCAGTGACA	CCCTCATCAT	TGCAACAGCA	AATAACACTA	TTGTGTGGAG	AAATTCTATA	TGCTAAGCAT	GCTGATTACA	AATATGCTGC	AGAAATAGGA	1000
1001	ATACAATATA	TTAGCACACG	TCTAGGATCA	GAGAGAGTAC	AGCAGATTCT	AAGAAACTCA	GGCAGTGAAG	TCCAAGTGGT	TTTAACCGA	ACGTACTCTT	1100
1101	TGGGGAAGT	TAAAAACAAC	AAAGGAGGAG	ATTACAGAT	GTTAGACATA	CACGGAGTAG	AGRAAAGCTG	GGTGAAGAG	ATAGACAAAG	AAGCAAGAAA	1200
1201	AACAATGGCA	ACTTTGCTTA	AGAATCATC	AGCAATATT	CCACAATATC	AGAGGCTTTC	AGCAACGAGC	ACACCTATA	TCTTATTATG	TGTAGGTGCC	1300
1301	TTAATATTTA	CCAACTAGC	ATCAACTATA	GAAGTGGGAT	TAGAGACCCAC	AGTCAGAAAG	GCTAAACCGTG	TACTAAGTGA	TGCACCTCAA	AGATACCCTA	1400
1401	GGATGGACAT	ACCAAAATC	GCTAGATCTT	TCTATGATT	ATTTGAACAA	AAAGTGTATT	ACAGAAGTTT	GTTCAATTGAG	TATGGCAAG	CATTAGGCTC	1500
1501	ATCCTCTACA	GGCAGCAAG	CAGAAAGTTT	ATTGTTAAT	ATATTCATGC	AAGCTTACGG	TGCTGGTCAA	ACAATGCTGA	GGTGGGAGT	CATTGCCAGG	1600
1601	TCATCTAACA	TATAATGTT	AGGCATAAG	CTGTCTCAAG	CTGAGTTAAA	ACAAGTCAAC	GAAGTCTATG	ACTGGTGGC	AGAAATGGGC	CCTGAATCTG	1700
1701	GGCTCTTACA	TTTAAGGCAA	AGCCCAAAAG	CTGACTGTT	ATCACTAGCC	AAATGTCCCA	ACTTTGCAAG	TGTTTCTC	GGCAATGCCT	CAGGCTTAGG	1800
1801	CATAATAGGT	ATGTATCGCG	GGAGAGTGCC	AAACACAGAA	ATATTTTCAG	CACGAGAAAG	CTATGSCAAG	AGTTTGAAG	AAAGCAATAA	AATTAACCTT	1900
1901	TCTTCTATTAG	GACTCAGCA	TGAAGAAAA	GAGGCTGCAG	ACACTTTCT	AAATGTGAGT	GACGACAGTC	AAATGATTA	TGAGTAATTA	AAAAGTGGG	2000
2001	ACAAGTCAAA	ATGTCATTCC	CTGAAGGAAA	AGATATTCTT	TTTCAATGGTA	ATGAAGCGGC	AAAATTGGCA	GAAAGCTTTC	AAAAATCAAT	AAGAAAACCT	2100
2101	AGTCATAAA	GATCTCAATC	TATTATAGGA	GAAGAAGTGA	ACACTGTATC	TGAACATTTG	GAATTACCTA	CTATCAGTAG	ACCTACCAA	CCGACCATAT	2200
2201	TGTCAGAGCC	GAAGTTAGCA	TGGACAGACA	AAGGTGGGCG	AATCAAAACT	GAAGCAAAAG	AAACAATCAA	AGTTATGGAT	CCTATTGAAG	AAGAAGAGTT	2300
2301	TACTGAGAAA	AGGGTGCTGC	CCTCCAGTGA	TGGGAAAAC	CCTGCAGAAA	AGAAAGTTGAA	ACCATCAACC	AATACTAAA	AGAAAGTCTC	ATTTACACCA	2400
2401	AATGACACAG	GAATATACAC	AAAGTTGGAG	AAAGATGCTC	TAGACTTGCT	TTTACAGCAAT	GAAGAAGAG	ATGCAGATC	CTCAATCTTA	ACCTTCGAAG	2500
2501	AAAGAGATAC	TTTATCATTA	AGCATTTGAAG	CCAGACTAGA	ATCGATTGAG	GAGAAATTTAA	GCATGATATT	AGGCTATTTA	AGAACACTCA	ACATTGCTAC	2600
2601	AGCAGGACCC	ACAGCAGCAA	GAGATGGGAT	CAGAGATGCA	ATGATTGGCA	TAAGGGGAGA	ACTAATAGCA	GACATAATAA	AAGAAGCCAA	GGGAAAAGCA	2700
2701	GCAGAAATGA	TGGAAGAAGA	AATGAACCCAG	CGGACAAAAA	TAGGAAACCG	TAGTGTAAAA	TTAACTGAAA	AGGCAAAAGGA	GCTCAACAAA	ATTGTTGAAG	2800
2801	ACGAGAGCAC	AAGTGGTGAA	TCCGAAGAAG	AAGAAGAACT	AAAAGACACA	CAGGAAAAATA	ATCAAGAAGA	TGACATTTAC	CAGTTAATTA	TGTAGTTTAA	2900
2901	TAAAAATAAA	AAATGGGACA	AGTGAAATG	GAGTCTATC	TGTTAGACAC	CTATCAAGGC	ATCCCTTACA	CAGCAGCTGT	TCAAGTTGAT	CTAGTAGAAA	3000
3001	AGGACCTGTT	ACCTGCAAGC	CTAAACAATAT	GGTTCCCTCT	GTTTCAGGCC	AATACACCCAC	CAGCAGTTCT	CTTGTATCAG	CTAAAGACTC	TGACTATAAC	3100
3101	TACTCTGTAT	GCTGTATCAC	AAAGTGTGCC	AATACTAAAA	GTAATGTGAT	CGGCCCGAGG	TGCAGCAATG	TCTGTCTTC	CCAAAAGTT	TGAAGTCAAT	3200
3201	CGCATGTGAG	CATTGACGA	ATATAGCAAA	TTAGAATTTG	ACAAACTTAC	GATCTAATCG	CATTATGCGA	TTTTATGGAT	CTAGAAAAGA	ACACACCAGT	3300
3301	TGGTATCAAA	GTTTGTGAGC	TCGGCCAAAC	CAGTTGGCAA	AAAAACACAT	CCACTGTTGA	AGCTGCAATA	AGCAGTGAAG	CAGACCAAGC	TCTAACACAA	3400
3401	TACAATACCA	GCATTTATCA	AATCAGTTTC	TATCAAGAG	AGTGAATCAG	TCCCAAAGGC	ATATTCAAGA	AGCTTGGAG	TGGACCCCAA	GTTATAGTAG	3500
3501	GCCAAATTTG	CACCTTATGC	GGGACTGATC	ATGATTATGA	CCATGAACAA	TGGAGCCATC	AAGGAACAAG	ATGTGTGCTG	AGTCCAGT	CAACGCAAG	3600
3601	AACATAGGAG	ATATGTCCAG	GCTGAAGACA	TAAGTAATAT	ATGCAAGACT	TTTTAGTTAT	ATAAAAAATCA	AGTTAGAATA	AGATGCTAG	CAATCAAGAA	3700
3701	CAACCTGACC	AAGAATCTACC	AACTCTATTC	TATAGACTAA	AAAGTCGCCA						

Fig. 38A

rHMPV-GFP (continued)

3801	CGGGACAAAT	AAAAATGTCT	TGAAAGTGG	TGATCAITTT	TTCAATTGCTA	ATAACACCTC	AACACGGTCT	TAAAGAGAGC	TACCTAGAAG	AATCATGTAG	3900
3901	CACTATAACT	GAGGGATATC	TTAGTGTTCT	GAGGACAGTT	TGGTATACCA	ACGTTTTTAC	ATTAGAGGTG	GGTGATGTAG	AAAACCTTAC	ATGTTCTGAT	4000
4001	GGACCTTAGC	TAATAAAAC	AGAATTAGAT	CTGACCAAAA	GTGCACCTAAG	AGAGCTCAAA	ACAGTCTCTG	CTGACCAAT	GGCAAGAGAG	GAACAAATG	4100
4101	AGAATCCCA	ACAATCTAGG	TTTGTTCTAG	GAGCAATAGC	ACTCGGTGTT	GCAACAGCAG	CTGCAGTCA	AGCAGGTGTT	GCAATTGCCA	AAACCATCCG	4200
4201	CGTTGAGAGT	GAAGTCACAG	CAATTAAAG	TGCGCTCAAA	ACGACCAATG	AAGCAGTATC	TACATTGGGG	AATGGAGTTC	GAGTCTTGGC	AACCTGCAGT	4300
4301	AGAGAGCTGA	AAGACTTTGT	GAGCAAGAA	TTAACTCGTG	CAATCAACAA	ATAACACCCG	CAATATCTTT	GGACTTAATG	ACAGATGCTG	AATAGGCCAG	4400
4401	TCAACAGAAG	GTTTCTAAAT	GTGTGCGGC	AAATTTTACA	CAATGCTGGA	AGAACCCGTG	GATGGTGCGA	AGAAAGGGGT	TCGGAATCCT	GATAGGGGTC	4500
4501	GGCCGTTTCT	AACATGCCGA	CATCTGCAGG	ACAAATAAAA	TTGATGTTGG	AGACACGGCT	TGCTGGATAG	TAAAAGCAGC	CCCTTCTTGT	TCCGGAAGAA	4600
4601	TACGGGAGCT	CCGTAATTA	CATGGTGAG	CTGCCAATCT	TTGGCGTTAT	AATGCAGGGT	CAACTGTTTA	CTACCCCAAT	GAGAAAGACT	GTGAACAAG	4700
4701	AGGGAACCTA	TGCTTGCTC	TTAAGAGAAG	ACCAAGGGTG	GTATTTGTCAG	GGCTCTGGTT	GCTTGCTACA	AGGAGTAG	CTGTTCAT	GGCAGCAACA	4800
4801	AGGAGACCAT	GTCTTTTGGC	ACACAGCAGC	GGGAATTAAT	GTTCCTGAGC	CAAGATGCGA	ACACAGTGAC	AATAGACAA	CTGTATATC	AGCTAAGCAA	4900
4901	GTGAGCAGAG	GAAGACATCC	TATCAGTATG	GTTCAGCTGT	CTTCCTCTGG	TTGATCCCAAT	CAAGTTTCTT	GAAGATCAAT	TCAATGTTGC	ACTTGACCAA	5000
5001	GAGTAGGGAT	CATCAAGCAG	CTGAACAAGG	GTTCCTCCTA	TATAACCAAC	AATCCTAAGC	AGTGCAGAGA	AGGGAATATC	TGGTTCATC	ATTGTAATA	5100
5101	AGTTGAGGGT	GAACAGCATG	TTATAAAGG	CAGCCAGGCC	TTGGTAGATC	ATAATCAAGA	AAACAAGAA	ACCAACGGGA	GCACCTCCAG	AGCTGAGTGG	5200
5201	GTCTTAATTC	TGCTCTTGGC	TCTAGCATGA	TCCTAGTGAG	CATCTTCAAT	TAAATTTTGG	GACAAATCAT	AATGTTCTCG	AAGCTCCAT	GCAATATATG	5300
5301	TGTCACAAAT	AATGGCTTCA	TACCACACAG	GTGTAAGTTT	AACCAATAAA	ACTGGAGTTG	GGCAGATAGA	TACTTATTA	TAAGATCAAA	CTATCTATTA	5400
5401	GAATGCTTTT	TAAGGACAC	GAGGAAGTGA	GTGTAAGTTT	AACCAATAAA	AGGCGCAGGC	AGAGAAGACA	GAAGCAAGA	TTTTTGTCTA	GGTTCACCA	5500
5501	ATGCGGGG	AAATGCAACA	TGATAGAGCT	GATGGCCTAT	CAATAATATC	GCCTGTCTAC	GTCTACACAA	CATAATCAAG	CAACTACAAG	AAGTTGAAGT	5600
5601	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	5700
5701	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	5800
5801	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	5900
5901	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	6000
6001	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	6100
6101	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	6200
6201	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	6300
6301	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	6400
6401	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	6500
6501	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	6600
6601	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	6700
6701	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	6800
6801	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	6900
6901	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	7000
7001	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	7100
7101	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	7200
7201	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	7300
7301	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	7400
7401	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	7500
7501	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	7600
7601	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	7700
7701	ATGCGTTTCA	AGGTATATAT	GATGATAACC	AAAGCAATAC	AAAAGCTGCA	ATGATCCCAAT	CTTATCTTAC	ATGGAGATGA	GCAAACTCC	CGCATCTTTA	7800

Fig. 38B

rHMPV-GFP (continued)

7801	CTTTTGCCCA	CATACATAACA	ACATCACAAC	CATCTCAAGA	AAAGAAACTG	GGCAAAACAG	CATCCAAAG	ACAAATAGCA	ATGGATCTCT	TTAATGAATC	7900
7901	CACGTGTAAT	GTCTATCTCC	CTGATTCGTA	CCTTAAAGGA	GTAATTTCTT	TTAGTGAAC	TAATGCAATT	GGTTCATGTC	TCTTAAAAAG	ACCCTACTTA	8000
8001	AAATAGACA	ACATGCAAA	AGTTGCCATA	GAGATCTCTG	TTATGTACAC	TGTGAGACT	AAAATCTGAG	TCAATTTTAA	AATGAAAAATA	TCAGATTACA	8100
8101	AGGTAGTAGA	GCCAGTAAAC	ATGCAACATG	AAATATAGAA	GAATGTAGCA	AGTTGTAGC	TCACACTATT	GAACAGTTT	TTAACAAGGA	GTAANAACCT	8200
8201	TAGCACTCTC	AAATGGAATA	TGATATGTGA	TTGGCTGCAA	TTAAAGTCTA	CATCAGATGA	TACCTCAATT	CTAAGTTTCA	TAGATCTAGA	ATTATACCT	8300
8301	AGTTGGGTAA	GCAACTGGTT	TAGTAATTGG	TACAATCTCA	ATAAGTTAAT	TTTGGAAATC	AGAAGAGAGG	AAGTAATAAG	AACCGGTTCA	ATCTTATGCA	8400
8401	GGTCATTGGG	TAAATTAGTT	TTTATTTGAT	CATCATATGG	ATGTATCGTC	AAGAGCAACA	AAAGCAAAAG	AGTGAGCTTC	TTACATATCA	ATCAACTGTT	8500
8501	AATCTGCAAG	GATGTGATGT	TAAGTAGATT	TAATGCAAT	TTTTGTATAT	GGGTAGCAA	TAGTCTGAAT	GAATAATCAGG	AAGGGCTAGG	GTTGAGAAGT	8600
8601	ATCTGCAAG	GATGTGATGT	TAAGTAGATT	TAATGCAAT	TTTTGTATAT	GCTAGCTTA	TGTTGCAATG	AAGTTTCTC	TTACAGATC	GAGTTCGAAG	8700
8701	GTTTTATTAT	GAGTGAGATC	TAATGCAAT	TATGAACTG	TAGATTATAT	ACTAGATTTA	GAATATCTTT	ATTGAATGGA	TTAACAGATC	AATTAACAAA	8800
8801	ATTAATAAAT	AAAAACAGAC	TCAGAGTTCA	TAGTACCGTA	TTAGAAATA	ATGATTATCC	AATGTATGAA	GTTGACTTTA	AATTAATTAGG	AGTACTTTTG	8900
8901	AGATGTATCA	AAATATTAAT	CAATAAAAAC	TTAGAAATG	CTGCAGAAAT	ATACTATATA	TTGAGAAATTT	TTGGTCAATC	AATGGTAGAT	GAAGAGATG	9000
9001	CAATGGATGC	TGTCAAATTA	AACTAAGAAA	TCACAAAAT	CCTAAGGTTG	GAGAGCTTGA	CAGAACTAAG	AGGGCAATC	ATATTAAAGGA	TTATCAAAAG	9100
9101	ATTTGTGGAC	AACAACAAA	GGTGCCCAA	AATTAATAAC	TTAAAGTTG	TTAGCAAAAG	ATGGACTATG	TACTTCAAG	CTAANAATTA	CCCCAGTCAA	9200
9201	CTCGAATTAA	GTGAACAAGA	CTTTCTAGAG	CTTGCTGCAA	TACAATTTGA	ACAAGAGTTT	TCTGTCTCTG	AAAAAACCAA	TCTTGAGATG	GTATTAAATG	9300
9301	ACAAAGCCAT	ATCACCCTCT	AAAGATTAA	TATGTTCTGT	GTATCCAAAG	AATTACTTAC	CTGAGAGCAT	AAAAATCGA	TATTTAGAG	AAACTTTCAA	9400
9401	TGCGAGTGAT	AGTCTCAAAA	CAAGAAGAGT	ACTAGAGTAC	TATTTAAAGG	ATAATAAATT	TGATCAAAAG	GAACTTAAAA	GTTATGTAGT	TAGACAAGAA	9500
9501	TATTTAAACG	ATAAGGACCA	CATTGTCTCA	TTAAGTGGAA	AGAAGAGAGA	ATTAAGTGTA	GTACAAGTA	TGGTGAATCTA	ACCTTCAAG	GAATATGGA	9600
9601	TACAATTAAT	GGCAGAAAAA	TTGTTAGCTG	ATAACTGTT	ACCTTTCTTC	ATAATTACAT	TGCAAGAGCA	TCCATAGTAA	CAGATTGAG	CAAGTTCAAC	9700
9701	AATCAAAATCA	GAATTTCTTT	CTATCAAAAC	CAGAGAAAT	GATAGTTATA	ATTACATGGA	ACACAAGCT	TATCTGTTG	GTTACATCTT	ATCGTTCTTA	9800
9801	CAAGCCCTTTA	GATATGAAC	TACAGCGATC	TGTGCGGATG	TAGCAGACGA	GAATATGATA	TAGATAAGAT	AGAAGAGCAA	AGTGTCTAT	ATAGATATCA	9900
9901	TGACTACAAAT	GATATGTGCC	TATAGACATG	CACCACCAAG	AACAAGAGT	TATCTTTATT	GGATGTTGTA	TCTGTAAAGA	CACGGTGTCA	AATGACATCT	10000
10001	CATGGGCGGT	ATTGAAGGAT	GGTGTCAAAA	ACTCTGGACA	ATGGAAGCTA	ATCTGAAGGT	TAGATGAAG	TGAAGSCAGA	TTATCGCTTA	GCAGTAAAAA	10100
10101	TATTTAAACG	GTGACAACCA	ATCAATAGAT	GTAAGTAAAC	CAGTCAAGTT	GAAGGGGAAA	CATATATATC	AAGGATCTTT	CAGTTTATAA	GCAAGGTGAT	10200
10201	TCCTAAAGA	ATAAGAGAT	GCATACAGAA	ATATAGGCCA	TAAACTTAA	TAGGACCATG	GATAAACACA	ATATTAGATG	ACATTAAC	TAGTGTCTAG	10300
10301	TCAATCTGAA	GGAGTGTGTC	ATCCTACCCC	TATAAAAAG	GTCITGAGAG	AGTTAGTCTG	ATATTAGAA	ACTTCTGGCT	GTAATACTTA	TACATGCTATG	10400
10401	TCAATAGGGA	GTCATATGCA	AGAAATTAGAA	TTTAGGGGAG	AAAGCATNAAT	AAACATTTAA	CATCAGTGCA	GAGATTTTTT	GAATTTAAAA	GGGAAAAATGA	10500
10501	AATCAAAGCA	ACATCCTTTG	GCAGGGAAC	AGTTATTCAA	ACAACATAAT	CAGTAGTCTT	CTATAGATCT	TTCTATAGAA	GGACCCCTGA	TTTTTTAACT	10600
10601	GGTAGTAGAT	CTATGGATGA	ACATACCMAI	GCMAATTGGA	GGAGGAGATC	AAATGAAACG	AAAGTAAGTT	TCTTCAAGC	CTTACTATCA	ATAGAAAAAA	10700
10701	GAGGCAATCA	GCAATGTAGA	TATTTCTGTA	AAAATATCAG	CTAACATAAA	TCAGAACGAC	AGCAAAAGT	AACAAGTGAC	ATCAATAGAA	CAGCAGTTAC	10800
10801	ATGAACGTGC	TACACTGACA	ACACTAATGA	GAGATCTCTA	AGCTGTTGGA	ACTACAGCAG	AAATGAAGAA	GAAGTGGGAA	TCATTGCGAA	AAACATAACA	10900
10901	CAGTATCTTA	AGTCTTTCCC	CAAATCAACT	TTTCAGTGAAT	AGTGTCTTCA	GAAGCTGAA	AAAGTTGTAA	ACATGATATC	AGGACAAAA	TCTATAACCA	11000
11001	CTGTGTTATC	CTCATGGGCT	GAGAGTAITA	GTGAAGATAT	TGACCGGCT	CATCTATGA	AGTTGGAGAA	TCTAGGATTA	TATCTAGAA	TATTGTCACT	11100
11101	ACTTATTACA	GAGAATCTCC	GCTATTAAATG	TGTAAGTATG	AGGCTGATAT	GTGTCTCAAT	CTCTAGGACT	TTAAGAGAGA	CATCATGGAA	TAATATGCA	11200
11201	AGTTGTTGAT	TAACATCTCC	TAGCATCACT	ACATGTATGG	ATGTCATATA	TGCAACTAGT	TCTCATTTGA	AGGGATAAT	TATAGAAAG	TTCCAGCACTG	11300
11301	ACAGAATAC	AAGGGGTCAA	AGAGGTCCAA	AAAGCCCTTG	GGTAGGGTGG	AGTACTCAAG	AGAAAAAAT	AGTACTGTT	TATAACAGAC	AAATCTCTC	11400
11401	AAAACAACAA	AGAGAACAGC	TAGAAGCAAT	TGAAAAATG	AGATGGGTGT	ATAAAGGAC	ACCAAGCTTG	CGACATTTAC	TCAACAAGAT	CTGTCTTGGG	11500
11501	AGTTTAGGCA	TTAGGTACAA	ATGTGTAAAA	CTTTTATTAC	CTAGGTTTAT	GAGTGTAAT	TTCTTACATA	GATTATTCTG	CAAGTAGAGA	CCTATGGAAT	11600
11601	TCCAGCATC	AGTTCCAGCT	TATAGAACAA	CAAATTACCA	TTTCGACACT	AGTCTTATTA	ATCAAGCACT	AAGTGAGAGA	TTTGGGAATG	AAGATATTAA	11700
11701											

Fig. 38C

rHMPV-GFP (continued)

11801	CTTGGCTTTC	CAAAATGCAA	TCAGCTGTGG	AATTAGCATA	ATGAGTGTAG	TAGAACAATT	AACAGGTAGA	AGCCCAAAAC	AGTTAGTTTT	AATACCCCAA	11900
11901	TTAGAAAGAA	TAGACATTAT	GCCACCACCA	GTGTTTCAAG	GGAAATTCAA	TTATAAATA	GTAGATAAGA	TAACTTCTGA	TCAACATAATC	TTTAGTCCGG	12000
12001	AAAAAATAGA	TATGTTAACA	CTAGGGAACA	TGCTCATGCC	CACATAAACA	GGTCAGAA	CAGATCAGTT	CTTAAATAAG	ATATCCATGG	ATTTCCATGG	12100
12101	AAACAATCTT	ATTGAGTCTT	TATCAGCAGC	ATTAGCATGT	CATTGGTGTG	GGATATTAA	AGAACAATGC	ATAGAAAATA	ATATTTTCAA	GAAGACTGG	12200
12201	GGTGACGGGT	TTATATCAGA	TCATGCTTTT	ATGGACTTCA	AAATATTCCT	ATGTGCTTT	AAACTAAAC	TTTTATGTAG	TTGGGGATCT	CAAGGGAACA	12300
12301	ACATTAAAGA	TGAAGATATA	GTAGATGAAT	CAATAGATAA	ATTGTTAAGG	ATTGACAATA	CTTTTGGAG	AATGTTCCAG	AAAGTTATGT	TTGAACCAA	12400
12401	GGTTAAGAAA	AGGATAATGT	TATATGATGT	AAAATTCCCTA	TCACTAGTAG	GCTACATAGG	GTTTAAGAAC	TGTTTATAG	AGCAGTTGAG	ATCAGCTGAA	12500
12501	TTGCAATGAA	TACCTTGGAT	TGTCATGCC	GAAGGTGATT	TGGTTGAGAT	CAAGTCAATT	AAATCTATT	TGCAACTGAT	AGACAAAGC	TTATTTTAA	12600
12601	GAATAACTGT	TTTGAACAT	ACAGATATGG	CACATGCTCT	CACACGATTA	ATCAGAAAGA	AGTTAATGTG	TGATAATGCA	CTGTAAACCC	CAATTTTCATC	12700
12701	CCCAATGGTT	AACTTAACTC	AGTTATTTGA	TCCCACAACA	CAATTAGATT	ACTTCCCAA	GATAACATTC	GAAGGGCTAA	AAATTTATGA	CACAAGTTCA	12800
12801	AATTATGCTA	AAGGGAAGCT	AACAAGAAAT	TACATGATAC	TATTGCCATG	GCAGCATGTT	AATAGATATA	ACTTTGCTTT	TAGTTCTACT	GGATGTAAAG	12900
12901	TTAGTCTGAA	AACATGTATT	GGAAACTTAA	TGAAGACCTT	AAATCCTAAA	GTTTTGTACT	TATTGGAGA	AGGAGCAGGA	AATTGGATGG	CCAGAACAGC	13000
13001	ATGTGAATAT	CCTGATATTA	AATTTGTATA	TAGAGTCTG	AAAGTGAACC	TTGATCATCA	TTATCCTCTG	GAATACCAGA	GAGTGATAGG	TGAATTAAGC	13100
13101	AGAAATCATAG	ATAGTGGTGA	AGGACTTTCA	ATGMAACAA	CAGACGCAAC	TCAAAAAATC	CATTGGGATT	TGATACACAG	GGTAAGCAGAA	GATGCTTTAT	13200
13201	TAATAACTTT	ATGTGATGCA	GAATTTAAGG	ACAGAGATGA	TTTTTTAAG	ATGTAATTC	TATGGAGAAA	ACATGTATTA	TCATGCAGAA	TTTGCACTAC	13300
13301	TTATGGGACG	GACCTCTATT	TATTCGCAA	GTATCATGCT	AAAGACTGCA	ATGTAAATTT	ACCTTTTTTT	GTGAGATCAG	TTGCTACTTT	CATTATGCAG	13400
13401	GGTAGTAAGC	TGTCAGGTTT	AGAATGCTAC	ATACTCTTAA	CACTAGGCCA	CCACACACGT	TTACCTTGCC	ATGGAGAAAT	ACAAAATTTCT	AAGATGAAAA	13500
13501	TAGCAGTGTG	TAATGATTTT	TATGCTGCAA	AAAACTCGA	CAATAATCA	ATTGAAGCTA	ATTGTAATC	ACTTTTGTCA	GGCTAAGAA	TACCTATAAA	13600
13601	TAGAAGGAA	CTAGATAGAC	AGAGAAGATT	ATTAACACTA	CAAAAGCAATC	ATTCCTCTGT	AGCAACAGTT	GGCGGTAGCA	AGATCATAGA	GTCTAAGTGG	13700
13701	TTAACAAACA	AAGCAAGTAC	AATAATTGAT	TGGTTAGAAC	ATATTTTAA	TTCTCCAAAG	GGCGAATTA	ATTATGATTT	TTTTGAAGCA	TTGGAGAACA	13800
13801	CTTACCCCTAA	TATGATTAAA	CTAATAGATA	ACTTAGGAA	TGCAGAGATT	AAAAAACTGA	TCAAAGTAAC	AGGATACATG	CTTTGTAAGTA	AAAAATGAAA	13900
13901	AATGATGAAG	ATGACAAAAT	AGATGACAAAC	TTCTACTAT	TCTAAATTAA	TTATTTGATT	ATGCAATTAT	ATGATAGATTA	ATTAAAAATTA	AAAAATTAATA	14000
14001	ATCAAAAGTT	AAAAATTAAA	ACCTATCATT	AAGTTTATTA	AAAAATAGAA	ATTATTAATTG	AATGTATACG	GTTTTTTTGC	CGT		14083
	10	20	30	40	50	60	70	80	90	100	

Fig. 38D



HMPV strain 75

	10	20	30	40	50	60	70	80	90	100
1	ACGCGAAAA	AACGCGTATA	AATTAATTC	CAACAAAAAC	GGGACAAATA	AAAATGTC	TTCAAGGGAT	TCACCTAAGT	GATCTGTCT	ATAACATGC
101	TATATTAATA	GAGTCTCAAT	ACACAATAAA	AAGATGTGTA	GGCACCACAA	CTGCAGTAC	ACTTTCATCA	TTGCAGCAAG	AGATAACACT	TTTGTGTGA
201	GAGATCTTTT	AGCTTAACA	TACTGATAC	AAATAGTGTG	CAGAGATCTT	GATACATAT	ATTGTCCAGG	CTCTAGGATC	AGAAAGAGTA	CAACAGATTI
301	TAAGAAATTT	AGGCGTGA	GTTGAGTGG	TCTTAACCAA	GAGATACCTG	TTAGGGAAG	GTAATAATAG	TAAAGGGGAA	GAGTTGCAA	TGTTAGATTI
401	ACATGAGTG	GAAGAAGTT	GGGTAGAAG	AATAGACAAA	GAGGCAAGAA	AAACAATGGT	GACTTTGCTA	AGGAATCAT	CAGGTAACAT	CCCACAAAAC
501	CAGAGGCCCT	CAGCACGAGA	CACACCAATA	ATTTTATTAT	GTGTAGGTG	TTTAATATT	ACTAAACTAG	CATCAACAAT	AGAAGTTGGA	CTAGAGACTA
601	GAGGTAGAG	AGCTAACAGA	GTGCTAAGT	ATGCGCTCAA	AGATACCCCT	AGGTAGATA	TACCGAAGAT	TGCTAGATCT	TTCTATGAAC	TATTTAGCA
701	GAAAGTGTAT	TACAGGAGTC	TATTCATTGA	GTATGGGAA	GCTTTAGGCT	CAGCTTCAAC	AGGAAGCAAA	GCAGAAAGTT	TGTTGTAAA	TATATTATG
801	CAAGCTTATG	GAGCGGTCA	AACAATGCTA	AGGTGGGTG	TCAATGGCAG	ATCATCTAAC	AACATAATGC	TAGGACATGT	GTCTGTCAA	GCTGAATTGA
901	AGCAAGTTAC	AGAGTTTAT	GATTTGGTGA	GAGAAATGGG	TCTGAAATCT	GGGCTTTTAC	ATCTAAGACA	AGTCCAAAG	GCAGACTGT	TATCGTTGGC
1001	CAATTTGCCCT	GATTTTGTCTA	GTGTTGTCT	TGTAATGCT	TCAGGTCTAG	GTATAATCGG	AATGTACAGA	GGAAAGAGTG	CAACACACAGA	GCTATTTCT
1101	GCAGCAGAAA	GTTATGCCAG	AGCTTTAAAA	GAAAGCAACA	AAATCAACTT	CTCTCATTA	GGGCTCACAG	ACGAAGAAAA	AGAAGCTGCA	GAACACTTCT
1201	TAAACATGAG	TGATGACAA	CAAGATGATT	ATGAGTAATT	AAAAAAGTGG	GACAAAGTCAA	AATGTCTATC	CCTGAAGGAA	AGATATCCT	GTTCATGGGT
1301	AATGAAGCAG	CAAAAATAGC	AGAAGCTTTC	CAGAAATCAC	TAAAAAGATC	AGGTACACAA	AGAACCCAGT	CTATTGTAGG	GGAAAAAGTA	AACACTATAT
1401	CAGAACTCT	AGAGCTACCT	ACCATCAGCA	AACCTGCACG	ATCATCTACA	CTGCTAGAGC	CAAAATTTGG	ATGGGCAGAC	AGCAGCAGAG	CCACCAAAAC
1501	CACAGAAAA	CAAAACACCA	AAACACACAGA	TCTGTGTGAA	GAAAGAGAAC	TCAATGAAAA	GAGATATACA	CCTTCCAGTG	ATGGGAAGAC	TCCCGCAGAG
1601	AAAAATCAA	AATCTCCAC	CAATGTAAAA	AGAAAGTTT	CCTTCACATC	AAATGAACCA	GGGAAATATA	CCAAACTAGA	AAAAGACTGC	CTAGATTGCT
1701	TCTCAGACAA	TGAGGAAGAA	GACGCAGAGT	CCTCAATCTT	AACCTTTGAA	GAGAGAGACA	CATCATCACT	AAGCAATTGAG	GCTAGACTAG	AATCAATAGA
1801	AGAGAAGCTA	AGCATGATAT	TAGGACTGCT	TCGTACACTT	AACATTGCAA	CAGCAGGACC	AACGGCTGCA	AGAGATGAA	TCAGAGATGC	AATGATTGGT
1901	ATAGAGAAG	AACTAATAGC	AGAAATATA	AAAGAAGCAA	AGGGAAGAGC	AGCTGAATG	ATGGAAGAGG	AAATGAATCA	AGGTCAAAA	ATAGTAATG
2001	GCAGTGTAAA	ACTAACCGAG	AAGGCAAAAG	AACTTAATAA	AATTTGTA	GACGAGAGCA	CAAGCGGTGA	ATCAGAAAGAA	GAAGAAGAAC	CAAAAGAAAC
2101	TCAGATAAC	AATCAAGGAG	AGATATTTA	CCAGTTAATC	ATGTAGTTA	ATAAAATAA	ACAATGGGAC	AGTCAAGAT	GGATCCTAT	CTAGTGACA
2201	CTTATCAAGG	CATTCCCTAC	ACAGCTGCTG	TTCAGTTGA	TCTGGTAGAA	AAAGACTTAC	TACCAGCAAG	TTTGACAAATA	TGGTTTCCTC	TATCCAAGC
2301	CAACACACCA	CCAGCGGTTT	TGCTCGATCA	GCTAAAGACC	TTGACAATAA	CAACTCTGTA	TGCTGCATCA	CAGAAATGGTC	CAATFACTCA	GGTAAATGCA
2401	TCAGTCAAGG	GTGCTGCTAT	GTCTGTACTT	CCCAAAAAT	TGGAAGTAA	TGCAACTGTG	GCACCTGTATG	AATACAGCAA	ACTTGACTTT	GACAAGTTAA
2501	CGGTTGCGA	TGTTAAACCA	GTTTATTGTA	CAACCATGAA	ACCATATGGG	ATGGTGTCAA	AATTTGTAG	TTCAAGCCAAA	TCAGTTGGCA	ACAAGACACA
2601	TGATCTAAT	GCACGTGTG	ACTTCATGGA	CCTAGAGAA	AATATACCTG	TGACATAACC	AGCATTCATA	AGTCAAGTTT	CAATCAAGA	GAGTGATCA
2701	GCCACTGTTG	AAGCTGCAAT	AAGCAGTGAG	GCCGACCAAG	CATTAAACACA	AGCCAAAAT	GCACCTCTATG	CAGGACTAAT	CATGATCATG	ACCATGAACA
2801	ATCCAAAAGG	TATATTCAAG	AAACTAGGAG	CTGGAACACA	AGTGATAGTA	GAGTAGGGG	CATATGTTCA	AGCCGAGAGC	ATCAGCAGGA	TCTGCAAGAG
2901	CTGAGTCAAC	CAAGGAACAA	GATATGTACT	AAAATCCAGA	TAAAAATAAC	TGTCCTAATC	AATAATTGCT	TATATAATCT	TAAAGATCAA	TGAGCTTATT
3001	ATTATAGTTA	TATAAAAAAA	TTTAGAAGCT	GGAAGGTATT	AATGAATAGC	GGGACAGTA	AAAATGCTT	GGAAAGTGAT	GATTATCAAT	TGTTACTCA
3101	TATACACTTA	GCACGACTA	AAGGAAGTT	ATTAGAGATA	ATCATGTAGT	GACTATAACT	AAGTATATCT	CAGTGTTTTA	AGACAGGTT	GGTACACCAA
3201	TGCTTTTACA	TTAGAGTTG	GTGATGTTGA	AAATCTTACA	TGTACTGATG	ACTATAGCTT	AATCAAAACA	GAACTTGACC	TAAACAAAAG	TGCTTAAGA
3301	GAACTCAAAA	CAGTTTCTGC	TGATCAGTTA	GCGAGAGAG	AACAAATGTA	AAATCCAGA	CAATCAAGGT	TTGCTTAGG	TGCAATAGCT	CTTGTTGTTG
3401	CCACAGCAGC	AGCAGTCACA	GCAGGCATTG	CGATAGCCAA	AACCATAGG	CTTGAGAGTG	AAGTGAATGC	AATCAAAAGT	GCTCTCAAAA	CAACCAATGA
3501	GGCAGTATCC	ACACTAGGAA	ATGGAGTGCG	AGTCTAGGCC	ACCGCAGTAA	GAGAGCTGAA	AGAATTTGTG	AGCAAAAACC	TTTCTAGTC	AATTAACAAG
3601	AACAATAGG	ACATTGCTGA	TCTGAAGATG	GCTGTAGCT	TCAGTCAATT	CACAGNAGA	TTCTTAATG	TTGTGCGCA	GTTTTCAGAC	AATGCAGGGA
3701	TAAACACCAG	AATATCATTG	GACCTAATGA	CTGATGCTGA	GCTGGCCAGA	GCTGTATCAT	ACATGCCAAC	ATCTGCAGGA	CATATAAAAC	TAATGTTAGA

Fig. 39A



HMPV strain 75 (continued)

3801	GAACCGTGCA	ATGGTGAGGA	GAAGAAGATT	TGGAATCTTG	ATAGGGGTCT	ACGGAAGCTC	CGTGATTTAC	ATGCTCCAGC	TGCCGATCTT	TGGTGTGATA	3900
3901	GATACACCTT	GTGGGATAT	CAAGGCAGCT	CCCTCTTGT	CAGAAAAAGA	TGGAACCTAT	CTTTGCTCTC	TAAGAGGGA	TCAAGGGTGG	TATTGTAAAA	4000
4001	ATGACAGATC	CACTGTTTAC	TACCCAAATA	AAAGAGACTG	CGAACAAGA	GGTGATCATG	TTTTTTTGTA	CACAGCTGCA	GGGATCAATG	TTGCTGAGCA	4100
4101	ATCAAGAGAA	TGCAACATCA	ACATATCTAC	AACCAACTAC	CCATGCAAAAG	TCAGCACAGG	AGACACCCCT	ATCAGCATGG	TTGCATCTATC	ACCTCTCGGT	4200
4201	GCTTTGGTGG	CTTGCTACAA	AGGGTTAGC	TGTTCAATTG	GCAGTAATCG	GGTTGGAATA	ATCAACAAC	TACCTAAAGG	CTGCTCATAC	ATAACTAAC	4300
4301	AGGACGCAGA	CACTGTAAAC	ATTGACAACA	CTGTGTATCA	ACTAAGCAAA	GGTGAGGGTG	AACAGCATGT	AATAAAGGG	AGACCAAGTT	CAAGCAGTTT	4400
4401	CGATCCAATC	AAGTTTCTTG	AGGATCAGTT	CAATGTTGGC	CTTGATCAAG	TTCTGTAAG	CTTTGTTGGT	TAACCATGAT	TTCAGTGAGC	ATCAATCATCA	4500
4501	ATTCTGAACA	GTGCAGAAA	AGGAACACT	GGTTTCATTA	TTGTAATAT	GTTTACCAACG	CGGTTTAT	ACCGCATAGT	TAGTTAATTA	AAAAATGGGA	4600
4601	TAATCAAAA	AACAAGGAAA	CCACAGGGG	CACCTCCAGA	GCTGAATGTT	GTGCAACAGG	GGAAGTGAGT	GCAATTCAC	CCACAATTAC	TGGAGTTGGC	4700
4701	CAATCATCA	TGCTCGTAA	AGCTCCATG	AAATATGAAG	TACGGGGCAA	AGAAACACTG	ATAGGCTGA	TGGTTGTCA	ATAATATCAG	GAGCAGGTAG	4800
4801	CTGATAGGTA	TTTATTGTTA	AGATCAAAAT	ATCTCTGAA	TCAGCTTTTA	GGTACATTGA	TGACATCAAC	GGAATAACAA	AGGCTGCAGC	TGCTATAGT	4900
4901	AGAAGACAGG	ACTCAAGACT	TTGTTCTTGG	TTCTACTAAT	GTGGTTCAAG	AGATAATAG	CTTTCTGACA	GCAAACTATG	GGCATTTCAC	AACTTGATAT	5000
5001	CTACATACAA	TAATAAACA	GCTACAGAA	ATAGAGTAA	GACAGGCCAG	AAGAAACTATC	CAAGAGAAA	ACTGAAAAA	TTAGCGAAAT	TAATAATTGA	5100
5101	TATCTATAT	GGAGATGAGC	AAACTCTCTG	CATCCCTGAT	TAATAACCTA	AAAGCACTAA	TCAAGTGCAG	TAGCATGGT	CCCAATTCA	TCACCATAGA	5200
5201	TTTATCAGCA	GGAACTGATA	ATGACTCTTC	ATATGCCCTG	CAAGACAGTG	ATGGGATAGC	AAAACTCACAC	ACCAATATTT	ACAGTTGTTA	TTTAGAAAA	5300
5301	GGCAGATGAT	ATGATATGGA	CACACANAGA	ATTAAAGAG	ACACTGTCTG	AAATGGGATA	ATGCAATAGA	AAACATTAGA	TGCTATAAAA	AGTGACGGAT	5400
5401	ATAGAAATAA	TATATGTTAA	AGCTTACTTA	AGTTAGTAA	AAATAAATAG	AAATTTGCTTA	TTGCATCAA	ACCGACATG	GCCTTATTGA	CGTCTTCAC	5500
5501	CCTCAGAAAC	ATGTAATCAA	CTCAAAAAA	TAATAAAAA	ACACTCAGGT	GTCAATTTAA	AAATGAATCA	GACAAAAAGG	ACACAAGCT	AAATACCACA	5600
5601	AGTAACAAT	ACTGTCAACT	ATCAAAAAGT	AGAAATAAT	TTGCAAGCAT	AAGGCTGATT	CAGAAACACA	CCAACCTCTG	CACAAAAGAC	AGAGATACCT	5700
5701	TCAACAACA	TCAGACCCAT	TCCTGATCTA	ATGCGAGTAC	AGTACTGAA	TTATGTTTTG	GGTCTATGAA	TTCAACAAAT	ACAGACTGTG	AAGAACCAC	5800
5801	GTGGAGAAAT	ACACACGAAT	CAATGCACAA	ATATAAANA	ATATAAGTTC	CAGAGTGCTA	CCGTCCACAT	ACAACCGAGT	GGTGGTGCCA	TTATCTTTAA	5900
5901	AGTTCTATGC	GACAAAAAGT	CAAAAACAT	GACAGAAAA	CATAGGAAG	TATTAAATATA	ATAGTCTAGT	TATTTAAAA	CTCTAAATAT	TGCTTAGACT	6000
6001	GAGAAACTC	AGTTTTCAAC	ATTAAATCA	GAACAAATCA	TATCTAGATC	CAAAACCCAC	TATATAACAA	TCACTGAGTA	ATACAAAAA	AGAAAATGGG	6100
6101	TACAAACAC	CTGCGGTCTAT	ATGCAATAAT	CAATGGTCAA	ACCCTGTTG	TCAAAGCMAA	GATGAAAAAC	CGTATAAGAA	GTAGCAAGTG	CCATAGAAAT	6200
6201	ACAAAGTGGC	ATGGAAGCAA	GAGTGGAGAA	CATTGGGGCA	ATAGACATGT	CCITTTAATC	ATTGATCATG	CAACATCAAA	AAACATGACC	AAAGTGGAACT	6300
6301	GCTACACTGA	TCCTTATTGG	ATCAACAGCA	CCAAGTATGG	CACCTCAACAC	TCTGCAGCAG	ACCCAAACAC	CAACCCCAAT	CCACAGCAGG	CAACACAGCT	6400
6401	ACTGTGTCAA	CATGCCGCCG	GTAGAACCAG	GCAAGAAAGC	CCCAATGACC	ACACCCGAGG	AAAAAGCCAA	CCAGAGCAAC	AACCAAAAA	GAAACCCACA	6500
6501	GACCAACAG	GATTCACAT	CTCTAGCAGC	AACCTAGAG	GACCATCTAC	ACACAGGGAC	AACCTCAACA	CCAGATGCAA	CAGTCTCCCA	GCAAAACACA	6600
6601	GACGAGCACA	CAACACTGCT	GAGATCAACC	AACAGACAGA	CCACCCAAAC	AACCCGACAG	AAAAAGCCAA	CCAGAGCAAC	TCTGCCAGAT	CCAGAAACAA	6700
6701	CTGGAACAC	AGCACAGCT	GCAACCCAAA	CACCTAACAC	CACCAACCAA	ACTAGCAATG	GAAGAGAGGC	AACCAACAAC	TCTGCCAGAT	CAACACAGAC	6800
6801	TGCCACAAC	CAAGCAGCG	ATCAAAACAC	CCAGGCAGCA	GACCCAAAGCT	CCCAATCACA	ACATACACAG	AAAAAGCACTA	CAAAACACCA	CAACACACTAT	6900
6901	ACATCTTCTC	CAAGTAGTTA	ACAAAAAACC	TATAAATAA	CCATGAAAC	CAAAAACTA	GAAGAATTAA	TTTGAATCA	TTTGAATCA	CAACACACTAT	7000
7001	ATGAATTGTT	TGAGCGTATA	TACTAATGAA	ATAGCATCTG	TTTGGTATC	ATATAATCCA	TCATTATTAA	AGAAATAAGA	AGAAATGAAA	ATTCAAGGGA	7100
7101	CAAAATAACA	TGGATCCGTT	TTGTGAATCC	ACTGCTAATG	TCTATCTTCC	TGATTCTAT	CTCAAGGAG	TAATCTTTT	CAGTGAACCT	AAATGCAATG	7200
7201	GCTCATGCTT	TTTGAAGA	CCCTATCTTA	AAAAAGATA	CACCTGCTAA	GTGCTGTAG	AAACCCCTGT	TGTTGAACAT	GTCAGACTTA	GAATGCAATG	7300
7301	CATGACCCAA	ATGAAGATAT	CAGATTATTA	AGTGGTTGAA	CCAATTAAAT	TGCAGCATGA	AAATATGAAA	AAATATACCA	TTTGAGCT	CACATTATTA	7400
7401	CAAAATTTCT	TAAACAAGAG	TAAACAACAT	AGTCCCTCAA	AAATTAAGTAT	GATATGTGAT	TGGTTACAGT	TAAATCCAC	CTTCAGATAAC	ACATCAATTC	7500
7501	TTAATTTTAT	AGATGTGGAG	TTTATACCCG	TTTGGGTGAG	CAATTTGGTT	AGTAACTGGT	ATAATCTCAA	TAAATTAATC	TTAGAGTTTA	GAAGAGAGGA	7600
7601	AGTAATAAGA	ACTGGTTCAA	TTTATGTCAG	ATCATAGGC	AAGTTAGTTT	TCATTGTATC	ATCTTATGGG	TGTGTAGTAA	AAAGCAACA	AAGTAAAGA	7700
7701	GTAAGTTTTT	TCACATATAA	CCAATGTTA	ACATGGAAAG	ATGTCATGTT	AAGTAGGTTT	AATGCANAAT	TTTGTATATG	GGTAAAGTAAAC	AACCTGAACA	7800

Fig. 39B

HMPV strain 75 (continued)

7801 AAAATCAAGA AGGACTAGGA TTAGAAGTA ATCTACAAGG TATGTTAACT  
7901 AGGTTCTCA CTAGTGAAG AGTTCGAAG TTATTATTG AGTGAAATTC  
8001 TTAATGGGT TGACTGAACA ATTATCAATG TTGAAGTGA AAGCAAGATC  
8101 TAGTACTTAA ATTATTAGG GACACTTTGA AAGATATAA ATTATTAAIT  
8201 TGGACACCTT ATGGTAGATG AGAGGGAAGC AATGGATGCT GTTAAATTAA  
8301 GGAGCAITTA TACTAGAAT TATAAAGGG TTGTAGATA ATATAAAGG  
8401 ATTTCAAGC TAAAGTTAC CCTAGCCAAC TTGAGCTAAG TGTAACAAGT  
8501 AAAAACCAAT CTTGAGATGG TATTAAATGA TAAAGCAATA TCTCCACCAA  
8601 AAAATCAAT ATTTAGAAG GGTCTTCAAT GCAAGTGACA GTCAAGGAAC  
8701 ACCTCAACG TTATGTAAC TAAACAAGAGT ATCTAAATGA CAAAGACCAC  
8801 TGCATGCAA CCTGGCAAC AAGACAAAT ACAGATACTA GCCGAGAAGC  
8901 GGTGACTTGG ATCTCCAAAG AATTATGGA ATGAATCAG AACTTTCTTC  
9001 CCATAGTAAC AGACCTAAGT AAATTCATC AAGCCTTAG ATATGAACCC  
9101 ATTTGTTGG TTACATCTTA TTGTTCCAT GACCACAATG ATATGTGCAT  
9201 GAAGAGCAA GTGGGCTATA CAGATACCAT ATGGGAGGGA TTGAAGGTTG  
9301 CTGTTAAGAC TCGTTGTCAG ATGACCTCTC TATTAAACGG AGACAATCAA  
9401 AAAGCAGAT TATAGCTTAG CAATTAAAT GCTTAAAGG ATAAGAGATG  
9501 AGAGACTTTC AATTATAAG TAAGGTGATT CAATCTAGG GGTCTATGCA  
9601 TACTAGATGA CATTAAACT AGTGCAGAA CAATAGGAG TCTGTGTCAA  
9701 TTCTGCTG TATNACTTAT ACATGCATGA GTCAAAACAG CATCCGTTAG  
9801 AGATTTTGG AGCTGAAGAA AGAAAATGAT GTGGTTGACC TATGGATGAA  
9901 TTTCAAGAG GACTCCTGAT TTCTGACTG AAGCAATCAG CCATGTGGAT  
10001 CTTTAAAGCC TTATTATCTA TAGAAAAGAA TGAACGTGCT ACATTAAACA  
10101 ACAAGTGATA TAAATAGAAC AGCAGTTACT AGCATCTGA GTCTATCTCC  
10201 AAGTAGGGAT CATTGCAGAC AACATAACAC CTGTTTATCC TCACGGATTG  
10301 TATGATATCA GGTACAAAGT CTATAACTAA CTTATTGCAG AGAACATCTG  
10401 TTAGGTTGT TATCTAGGAT ATTGTCAGTA ATAAATTAATA GTATAGAAAT  
10501 TGAGAGAAA ATCATGGAA ATATGGAAA TAGTAGGAGT GACATCTCCA  
10601 AGGAATAAT ATTGAAAAT TCAGTACTGA CAAGACCACA AGAGGTGAGA  
10701 GTTCTGTTT ATACAGACA AATCTTTCA AAACAACAAA AAGAGCAACT  
10801 GAAGATTGCT CAATAAGATG TATCTAGGAA GTTTAGTAT TAGCTATAAA  
10901 GTTATCTGTT AGTAGCAGAC CCATGGAAT CCCAGTTCT GTTCCAGTT  
11001 AGTGAGAGGT TCGGAACGA AGACATTAA CTAGTGTTC AAAATGCAAT  
11101 GCCCAACA ATTAGTCTTA ATCCCCAAT TAGAAGAT AGATATTATG  
11201 AACCTCCGAT CAACACATCT TCAGTCTGTA CAAATAGAC ATATTACAC  
11301 TTAATAAGA GAGAAAAC TAATCTAGG AATATTTAA TTGAATCTTT  
11401 TAGAAAACA TATCTTTAGG AAAGCTGGG GTGATGGGT CATATCAGAT  
11501 TTTATGTAGT TGGGATCCC AAGGAAAAA TGTAAAGAT GAAGATATAA  
11601 ATGTTGAGCA AGTCATGTT TGAATCAAG GTCAAAAAA GAATAATGTT  
11701 GGTATTAGA GCAGTTAAGA GTAGTAGAAT TGCATGAAGT ACCCTGGATT  
AATAAATTAT ATGAAACTGT TGATTATATG TTAAGTCTAT GTAGCAATGA 7900  
TTAAATTTAC TGAGCATGCT TATTTCAGTA TAGGTTTAG GAATCTTTA 8000  
TAGAGTTCTT GGCACTATAT TAGAACAACA CTAGTACCCC ATGTATGAAG 8100  
AACAAAGATC TGAATAATGC TGCAGAAITTA TATTATATAT TCAGAAITTT 8200  
ATAATGAGAT TACAATAAT CTTAACTGG AGAGCTTAAC AGAAGTAAAG 8300  
ATGGCTTAAA ATTAAGAAT TAAAGTGCT CAGTAAAAA TGGGTTATGT 8400  
TTTTTAGAAC TTGCTGCAGT ACAATTCGAA CAGGAATTTT CTGTCCCTGA 8500  
AAAAGTTAAT ATGCTCGGTA TATCCAAAA ATTATCTACC TGAAATTTATA 8600  
GAGGAGAGTC TTAGAATTTT ACTTAAAAA TTGCAAAATTT GATCAAAAAG 8700  
ATTGCTCAT TAACTGGGA AGAAGAGAA TTAAGTGTAG GCAGGATGTT 8800  
TTTTAGCTGA TAATATTGTA CCCTTTTCC CAGAACTTT AACAAAGTAT 8900  
CATTAAACT AGGAAGAAT ATAGTTACAA CAATTATAT GCAAGAGCTT 9000  
ACAGCTATCT GCGCAGAGCT AGCAGATGAG TTACATGGCA CGCAAGCTT 9100  
ACAGACATGC ACCACCAGAA ACAAGGGGG AGTATGATAT AGCAAAATA 9200  
GTGTCAGAAG TTATGGACAA TGGAGGGGAT ATCTTTGTTA GATGTAGTAT 9300  
TCAATAGATG TCAGTAAACC AGTAAAAITG TCTGAAGGTA TAGATGAAT 9400  
CCATATAAA CATTGGCCAT AACTCAAG AGGTGAAAC ATATATATCA 9500  
TCCTACCCC ATAAAAAAGA TATTAAGGGT AGGTCCCTGG ATAAATACAA 9600  
GAATAGAGT TCAGAGGAGA AGTATACTA GTTAGCTTGA TATTAAGGAA 9700  
CTGGAAAAA ACTGTTTAA CAATTGAACA AAACACTAAC ATCTGTCAA 9800  
TATACCAATG CAGTTTGAG GGGGAGACC AGTAGTTTTT TACAGATCTT 9900  
TTACTGTTAA AAGTTTCAA CAATATTAA AATGAGACTA AGTACGATT 10000  
CACTAATGAG AGACCCCCAG GCGGTAGGAT CGGAAAGACA AGTAAAGTA 10100  
GAATCAGTA TTTGTGATA GTGCTATACA CTATAGCAGA AATGAAGAAG 10200  
AGAGTGCTCT ATGAATCACT ACCTTTTCT AAGSCTGAA AGTTGTCAA 10300  
CTATCAATGG TGAAGATAT GATAGAGCAG TGTCTATGAT GTTAGAAC 10400  
ACCAATTAAG TCCAATGGCA GATTGATATG CTGTCAAAT TCTAGACTT 10500  
AGTATTGTA CATGTATGGA TGTGTGTAT GCGACTAGTT CTCATTAAA 10600  
GGGACCCAA AAGCCCTTGG GTAGGATCAA GCACTCAAG GAAAATAA 10700  
GGAAGCAATA GAAAATAATG GGTGGGTGTA TAAAGGAACT CAGGCTAA 10800  
TGTTGTAAC CTCTATTACC AAGATTTATG AGTGAACCT TCTTACATAG 10900  
ATAGGCAAC AAATTACCA TTTGACACTA GTCCAATCAA CCAAGCATTA 11000  
CAGTGCCTGA ATTAGTATAA TGAGTGTGT AGAACAGITA ACTGTAGAA 11100  
CCCCCTCTG TATTTCAAG AAAATTCAT TATAAAGT TGTATAAAT 11200  
TAGGGAAGT CTGTATGCT ACTATAAAG GTCAAAAAA TGATCAGTTC 11300  
ATCTGACGA CTTGATGCC ATGTTGTGG AATATTAACA GAACAGTGT 11400  
CATGCCCTCA TGGATTTCAA GATATTTCTA TGTGTATTA AACCAAACT 11500  
TAGATGAATC CATTGACAAA TTATTAGAA TTGACAAAC TTTTGGAGA 11600  
ATATGATGA AAATCTCTAT CATTAGTAGG TTATATAGGA TTTAAAAACT 11700  
GTCAATGCTG AAGGGAGCT AGTTGAANT AAACCAATCA AAATTTATTT 11800

Fig. 39C

HMPV strain 75 (continued)

11801	GCAGTTAATA	GAACAAAGTC	TATCTTTAAG	AATAACTGTT	TTGAATTATA	CACACATGGC	ACATGCTCTT	ACACGATTAA	TTAGGAAGAA	ATTGATCTGT	11900
11901	GATAATGCAC	TCTTTAATCC	AAGTTTCATCA	CCAAATGTTA	GTCTAACTCA	AGTTATTGAT	CCTACAACAC	AGTAGACTA	TTTTCTAAG	GTAATATTG	12000
12001	AAAGGTTAAA	AAGTTATGAC	ACCAGTTTCC	ACTACAACAA	AGGGAAGTTA	ACAAGAAATT	ACATGACATT	ATTACCATTG	CAGCAGTAA	ACAGGTATA	12100
12101	TTTTGTCTTT	AGTTCAACAG	GATGTAAAT	CAGCTTGAAG	ACATGCATCG	GGAAATTGAT	AAAGGACTTA	AACCTAAGG	TTCTTTACTT	TATTGGAGAA	12200
12201	GGAGCAGGTA	ACTGGATGGC	AAGAACAGCA	TGTGAGTATC	CTGACATAAA	ATTTGTATAT	AGGAGTTTAA	AGGATGATCT	TGATCACCAT	TACCCATTAG	12300
12301	AATATCAAG	GGTAATAGGT	GATTTAATA	GAGTAATAGA	TGGTGGTGAA	GGATTATCAA	TGGAGACCCAC	AGATGCAACT	CAAAAGACTC	ATTGGGACTT	12400
12401	GATACACAGA	ATAAGTAAAG	ATGCTTTTAT	GATAACATTG	TGTGATGCAG	AAITCAAAAA	CAGAGATGAT	TTCTTTAAAA	TGGTAAATCT	TTGGAGAAAA	12500
12501	CATGTATTAT	CATGTAGNAAT	CTGTACAGCT	TATGGAACAG	ATCTTTACTT	ATTTGCAAG	TATCATGCCA	CGGACTGCAA	TATAAGTTA	CCATTTTITG	12600
12601	TAAGGTCTGT	AGCTACTTTT	ATTATGCAAG	GAAGCAAAAT	GTCAGGATCA	GAATGTTACA	TACTTTTAAC	ATTAGGTCAAT	CACAATAATC	TGCCATGTCA	12700
12701	CGGAGAAATA	CAAAATTTCCA	AAATGAGAAAT	AGCAGTGTGT	AATGATTTCC	ATGCCCTCAA	AAAACTAGAC	AACAAATCAA	TTGAAGCAAA	CTGCAATCT	12800
12801	CTTCTATCAG	GATTAAGNAAT	ACCAATAAAC	AAAAAGAGT	TAAATAGACA	AAAGAACTG	TTAACACTAC	AAAGCAATCA	TTCTTCCATA	GCAACAGTTG	12900
12901	GCGGAAGTAA	GATTATAGAA	TCCAAATGGT	TAAAGAATAA	AGCAAGTACA	ATAATTGATT	GTTTAGAGCA	TATCTTGAAT	TCTCCAAGAG	GTGAATTAAA	13000
13001	CTATGATTTT	TTTGAAGCAT	TAGAGAACAC	ATATCCCAAT	ATGATCAAGC	TTATAGATAA	CCTGGGAAAT	GCAGAGATAA	AAAACTAAT	CAAGTTACC	13100
13101	GGGTATATGC	TTGTGAGTGA	GAAGTAATAA	TAATAATAAT	AATCAACCAT	AATCTCACAC	AACGTGAGAA	ATGATCATCT	AACAGTTTAA	TTGACCATTA	13200
13201	GTAAATTAAA	AATTATAAAT	TAGTAACATA	TTGATAAAAA	ATAAGAAAT	GAAATTGAAT	GTATACGGTT	TTTTTGCCGT			13280

Fig. 39D